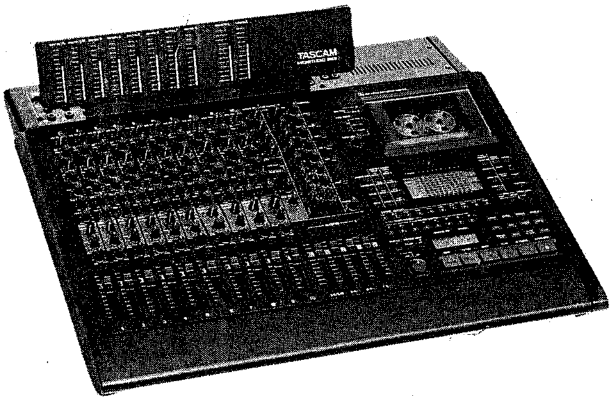

TASCAM
TEAC Professional Division

SERVICE MANUAL

688
MIDISTUDIO

NOTES

As regards the resistors and capacitors, refer to the circuit diagrams and the PCB ass'y drawings contained in this manual.

* Parts marked with * require longer delivery time.
* Resistor values are in ohms (k = 1,000 ohms, M = 1,000,000 ohms).
* All capacitor values are in microfarads (p = picofarads).
* ⚠ Parts marked with this symbol are safety critical components. They must always be replaced with identical components — refer to the TEAC parts List and ensure exact replacement.
* 0 dB is referenced to 1V in this manual unless otherwise specified.
* PC boards shown are viewed from electric parts side.
* Parts not shown in the parts lists or parts, through listed, having no parts numbers are not general "ready-to-supply" parts.

注意

標準の抵抗： コンデンサーは省略してあります。回路図及び基板図を参照してください。

1. プリアンプ基板図は部品面が示されています。
2. ＊印の部品は納期が若干かかります。あらかじめご了承ください。
3. ⚠印は安全規格重要部品です。交換するときは必ずティアック指定の部品を使用して下さい。
4. レベルは0dB＝1Vを基準にしています。
5. コンデンサの単位はμF.p＝pF（1μF＝1,000,000pF）
6. 製品が改善されているために、製品と回路図が一部異っている場合があります。
7. リストされていない部品は原則としてサービス供給部品として取扱っていません。

ADVARSEL !
Lithiumbatteri — Eksplosionsfare.
Udskiftning mä kun foretages af en sagkyndig,
og som beskrevet i servicemanualen.
Udskiftning mä kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Effective: OCT., 1989 930669

1. SPECIFICATIONS

仕 様

MECHANICAL CHARACTERISTICS

Tape	Compact cassette (C-30 to 90), Hi-Bias type II (CrO_2) tape
Track Format	8-track, 8-channel, single directional record/play
Head Configuration	1 8-channel record/play (sendust), 1 8-channel erase (ferrite)
Motor	1 DC servo capstan motor, 1 DC reel motor, 1 DC ancillary motor
Tape Speed	9.5 cm/sec. (3-1/2 ips) ±1.0 %
Pitch Control	±12 % (approx.)
Wow and Flutter	0.04 % WRMS, ±0.06 % W. PEAK
Fast Winding Time	85 sec. (approx.) with C-60
Dimensions (W x H x D)	608 x 147.5 x 551 mm (23-15/16" x 5-13/16" x 21-11/16")
Weight	17.5 kg (38-9/16 lbs.)

ELECTRICAL CHARACTERISTICS

Mixer Section

MIC (LINE A) Input (XLR Balanced x 10)	
Mic Impedance	Less than 600 ohms
Input Impedance	2.8k ohms
Nominal Input Level	-60 dBV (1 mV) to -20 dBV (0.1 V)
Maximam Input Level	+2 dBV (1.26 V), trim min.
LINE B Input (1/4 Phone Jack x 10)	
Input Impedance	20k ohms
Nominal Input Level	-10 dBV (0.3 V)
Maximum Input Level	+12 dBV (4.0 V)
INSERT (1/4 Phone Jack x 10)	
— Send (Tip) —	
Output Impedance	100 ohms
Nominal Load Impedance	10k ohms
Minimum Load Impedance	2k ohms
Nominal Output Level	-10 dBV (0.3 V)
Maximum Output Level	+10 dBV (3.0 V)
— Receive (Ring) —	
Input Impedance	5k ohms
Nominal Input Level	-10 dBV (0.3 V)
Maximum Input Level	+10 dBV (3.0 V)
EFFECT RETURN (1/4 Phone Jack x 8)	
Input Impedance	20k ohms
Nominal Input Level	-10 dBV (0.3 V)
Minimum Input Level	-20 dBV (0.1 V)
GROUP OUT (RCA Jack x 4)	
Output Impecande	100 ohms
Nominal Load Impedance	10k ohms
Minimum Load Impedance	2k ohms
Nominal Output Level	-10 dBV (0.3 V)
Maximum Output Level	+10 dBV (3.0 V)
AUX OUT (1/4 Phone Jack x 2)	
Output Impedance	100 ohms
Nominal Load Impedance	10k ohms
Minimum Load Impedance	2k ohms
Nominal Output Level	-10 dBV (0.3 V)
Maximum Output Level	+10 dBV (3.0 V)
DUAL OUT (1/4 Phone Jack x 2)	
Output Impedance	100 ohms
Nominal Load Impedance	10k ohms
Minimum Load Impedance	2k ohms
Nominal Output Level	-10 dBV (0.3 V)
Maximum Output Level	+10 dBV (3.0 V)
MONITOR OUT (RCA Jack x 2)	
Output Impedance	100 ohms
Nominal Load Impedance	10k ohms
Minimum Load Impedance	2k ohms
Nominal Output Level	-10 dBV (0.3 V)
Maximum Output Level	+10 dBV (3.0 V)

688 MIDISTUDIO

TASCAM
TEAC Professional Division

ティアック株式会社	営業部	☎ (0422)52-5070㈹	〒180 東京都武蔵野市中町1－19－18	武蔵野センタービル
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サービスに関するお問合わせは，最寄りの営業所等へご連絡ください． 営業所にはサービス・センターが併設されています．	札幌営業所	☎ (011)521-4101㈹	〒064 札幌市中央区南7条西2－2	くぼたビル
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	名古屋営業所	☎ (052)782-4581㈹	〒464 名古屋市千種区東山通り3－2－3	
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	大阪営業所	☎ (06) 384-5201㈹	〒564 吹田市垂水町3－34－10	
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	福岡サービス	☎ (092)936-5672	〒811-22 福岡県粕屋郡志免町志免1041	
	沖縄サービス	☎ (09889)2-2020㈹	〒901-22 沖縄県宜野湾市字喜友名229	
	サービス一課	☎ (0425)60-8918	〒190-12 東京都武蔵村山市伊奈平2－11－1	

営業所またはサービス・センターの電話番号や住所などは，予告なく変更する場合が有りますのであらかじめ御了承下さい。

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TEAC AMERICA, INC.	7733 Telegraph Road, Montebello, California 90640 Phone: (213) 726-0303
TEAC CANADA LTD.	340 Brunel RD, Mississauga, Ontario L4Z 2C2, Canada Phone: 416-890-8008
TEAC UK LIMITED	5 Marlin House, Marlins Meadow, The Croxley Centre, Watford, Herts, WD1 8YA, U.K. Phone: 0923-225235
TEAC DEUTSCHLAND GmbH	Bahnstrasse 12, 6200 Wiesbaden-Erbenheim, West Germany Phone: 06121-71580
TEAC FRANCE S.A.	17, Rue Alexis-de-Tocqueville CE 005 92182 Antony Cedex, France Phone: (1) 42.37.01.02
TEAC AUSTRALIA PTY., LTD.	106 Bay Street, Port Melbourne Victoria 3207, Australia Phone: (03) 646-1733

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PHONES OUT (1/4 Phone Jack x 2)	
Nominal Load Impedance	8 ohms
Maximum Output Level	100 mW + 100 mW
EQUALIZER	
HIGH (Shelving)	10 kHz, ±12 dB
MID (Peaking)	250 Hz to 5 kHz, sweepable, ±15 dB
LOW (Shelving)	100 Hz, ±12 dB

Recorder Section

Record/Play Channel	8 in number
Noise Reduction	dbx NR (each channel switchable separately; channel 8 disconnected from NR for as long as the SYNC switch is on)
TAPE OUT (RCA Jack x 8)/ EXT SYNC OUT (RCA Jack x 1)	
Output Impedance	100 ohms
Nominal Load Impedance	10k ohms
Minimum Load Impedance	2k ohms
Nominal Output Level	-10 dBV (0.3 V)
EXT SYNC IN (RCA Jack x 1)	
Input Impedance	10k ohms
Nominal Input Level	-10 dBV (0.3 V)
Minimum Input Level	-16 dBV (0.15 V)

Others

Power Requirements	
JAPAN	100 V 50/60 Hz
USA/CANADA	120 V AC 60 Hz
U.K./AUSTRALIA	240 V AC 50 Hz
EUROPE	220 V AC 50 Hz
GENERAL EXPORT	120/220/240 V AC 50/60 Hz
Power Consumption	65 Watts

TYPICAL PERFORMANCES

Mixer Section

Frequency Response	20 Hz to 20 kHz, +1/-2 dB
Signal-to-Noise Ratio (at Nominal Input Level)	(UNWTD (20 Hz to 20 kHz)/IHF A WTD)
10 Mics to 1 Group Out	66 dB/67 dB
1 Mic to 1 Group Out	69 dB/74 dB
10 Line Bs to 1 Group Out	71 dB/72 dB
1 Line B to 1 Group Out	71 dB/78 dB
Total Harmonic Distortion (THD)	
1 Mic to 1 Group Out	0.06 %, at 1 kHz (20 dB above nominal input level, low-pass filter, 30 kHz, inserted)
1 Line B to 1 Group Out	0.04 %, at 1 kHz (nominal input level)
Crosstalk	60 dB, at 1 kHz

Recorder Section

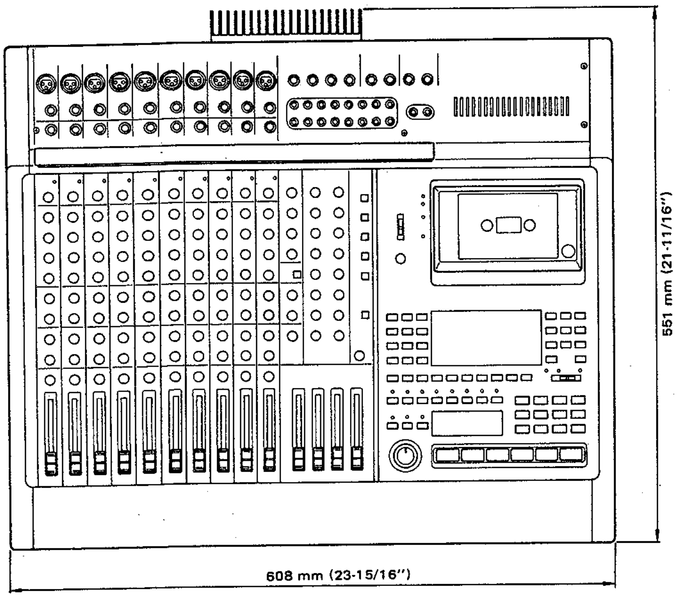
Frequency Response (Overall)	40 Hz to 16 kHz, ±3 dB (without dbx*)
Signal-to-Noise Ratio (Overall) (Ref. to 3 % THD)	(UNWTD (20 Hz to 20 kHz)/IHF A WTD) 55 dB/58 dB (without dbx) 90 dB/93 dB (with dbx)
Total Harmonic Distortion	1.0 % (400 Hz, 0 dB)
Crosstalk (adjacent channels)	70 dB (with dbx); 50 dB (without dbx) (1 kHz, 0 dB)
Erasure	70 dB (1 kHz, +10 dB)

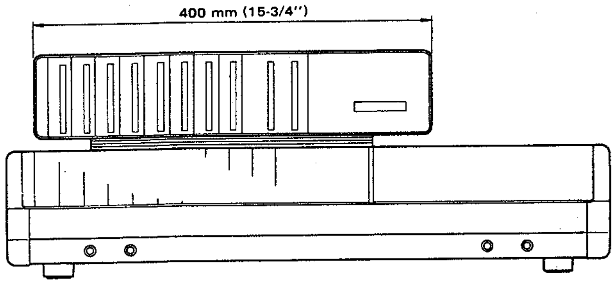
In these specifications, 0 dBV is referenced to 1.0 Volt rms. Actual voltage levels are also given in parenthesis. To calculate the 0 dB = 0.775 Volt reference level (i.e., 0 dBu or 0 dBm in a 600 ohm circuit) add 2.2 dB to the listed dBV value, i.e., 0 dBV = +1.0 volt = +2.2 dBm.
Changes in specifications and features may be made without notice or obligation.

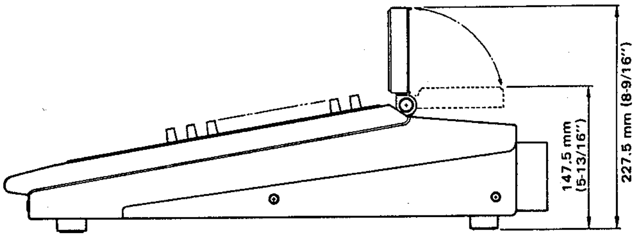
*dbx is a registered trademark of dbx Incorporated.

・この仕様中の0dBVは1.0Vを基準としています. 実際の電圧も（ ）で示しています.
・仕様及び外観は改善のため予告なく変更することがあります.

External Dimensions
寸法図


551 mm (21-11/16")
608 mm (23-15/16")




147.5 mm (5-13/16")
227.5 mm (8-9/16")

2. OPENING THE UNIT CABINET
本体ケースの開け方

Disassemble in number-order
番号順に外して下さい

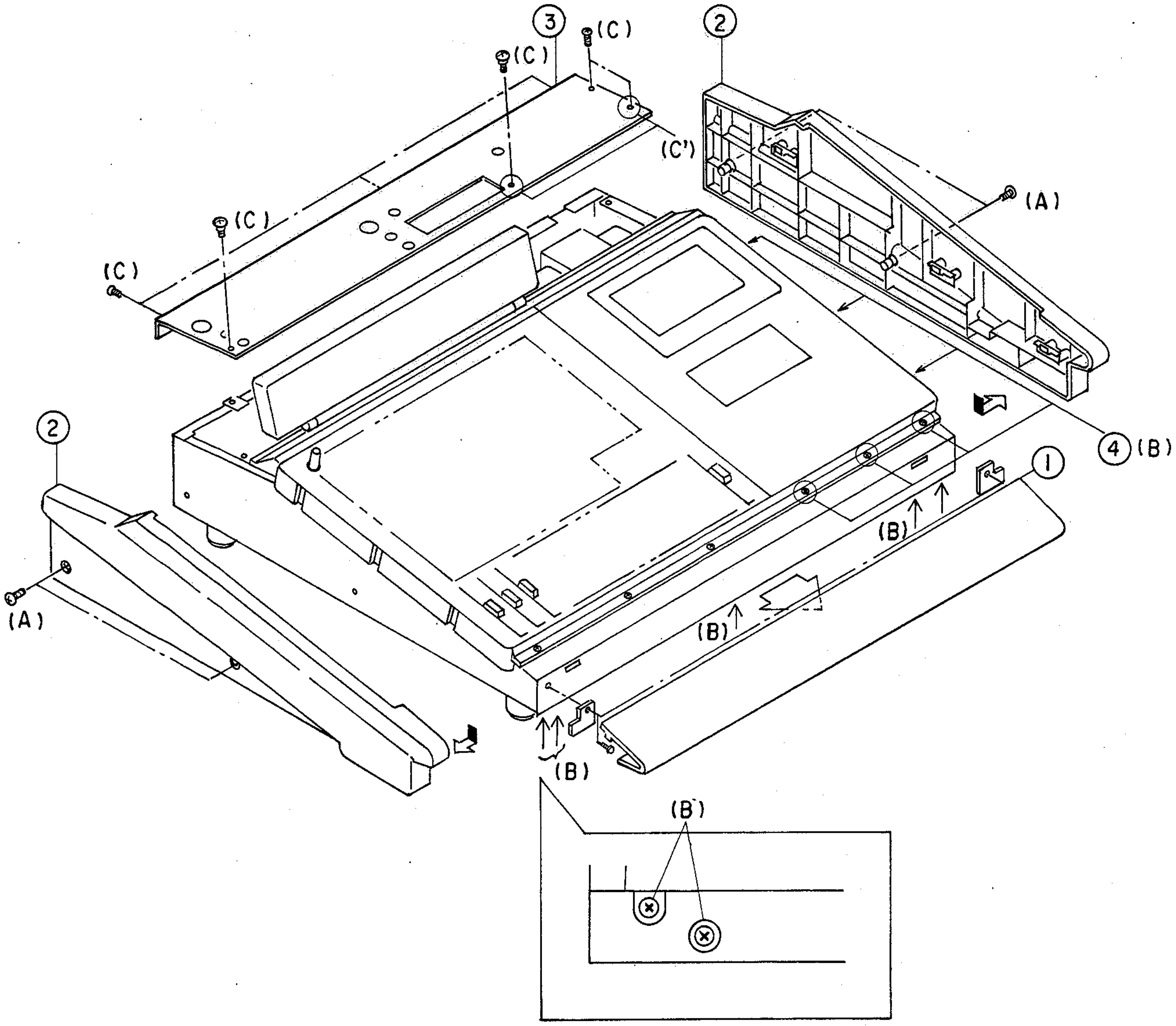


Fig. 2-1
図2−1

Escutcheon-R Assembly

1. Remove the case pad by loosening 5 screws (B) (no need to remove the screws, just loosen).
   Next, remove left and right stoppers.
2. Remove the left and right side-panels by unscrewing 2 screws (A) from each side-panel.
3. Remove the in/out panel by removing 7 screws (C).
   Note: If the escutcheon-R is only required to be open, remove 2 screws (C').
4. Remove 6 screws (D) holding the escutcheon-R assembly.

[エスカッション R ASSY]

1. ケース用パッドはネジ (B) 5本を緩めて外す.
   (ネジを外す必要はなし). 次に, 左右のSTOPPERを外す.
2. サイドパネルを左右各2本のネジ (A) で外す.
3. インアウトパネルをネジ (C) 7本で外す.
   ＊エスカッション R ASSYのみを開ける場合は, (C') のネジ2本を外すだけでよい.
4. エスカッション R ASSYを留めているネジ (D) 6本を外す.

5. Remove 2 screws (E).
6. Pull out the Pitch Control knob (F).
7. Now, the escutcheon-R assembly can be opened.

5．ネジ(E) 2本を外す．
6．PITCH CONTROL 用つまみ(F) を引き抜く．
7．以上のネジ等を外した後，エスカッション R ASSY を開けることができます．

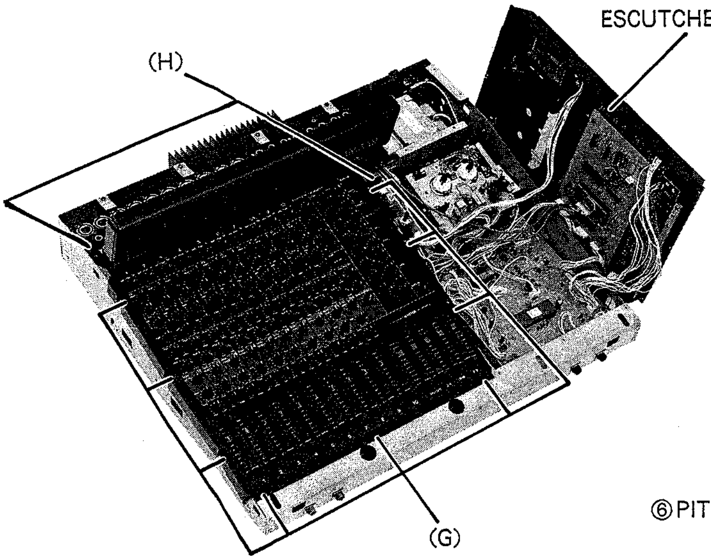

ESCUTCHEON R Ass'y
(H)
(G)

Fig. 2-2
図2−2

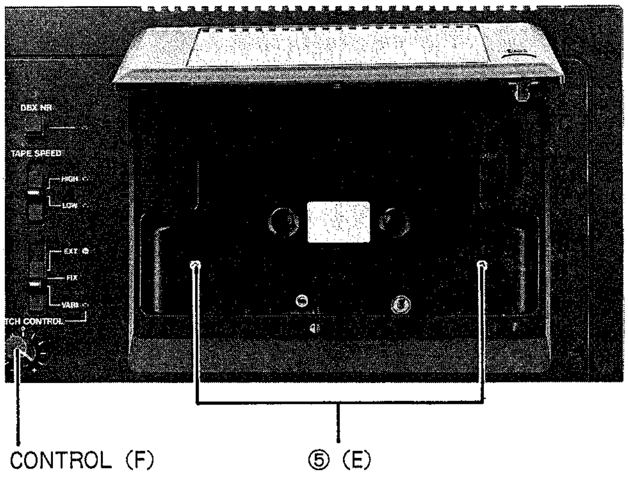

⑥PITCH CONTROL (F)
⑤ (E)
DBX NR
TAPE SPEED
HIGH
LOW
EXT
FIX
VARI
CH CONTROL

Fig. 2-3
図2−3

Escutcheon-L Assembly

8. Remove 9 screws (G) and 2 screws (H) holding the escutcheon-L assembly (refer to Fig. 2-2).
9. Now, the escutcheon-L can be opened. When the escutcheon-L is being open, the headphones cable hinders from opening so unplug the headphones connector. After opening the escutcheon-L, hold it by propping.
Note: Take care not to break the wires coming from PC board when opening the escutcheon-L as they are short.
10. Remove 6 screws holding the shield plate, then the R/P PC board will appear.

[エスカッション L ASSY]

8. エスカッション L ASSYを留めているネジ (G) 9本及びネジ (H) 2本を外す. (図2−2)
9. 以上でエスカッション L ASSYを開けることができます. (図2−4) 開ける途中でヘッドホンケーブルがつかえますので, 同コネクターを抜いて下さい.
エスカッション L ASSY を開けた後はつっかえ棒等で支えてください.
注. PCBからの線材が短いので開閉のときには, 充分注意をして下さい.
10. シールドプレートを留めているネジ6本を外すとR／P PCBが出て来ます.

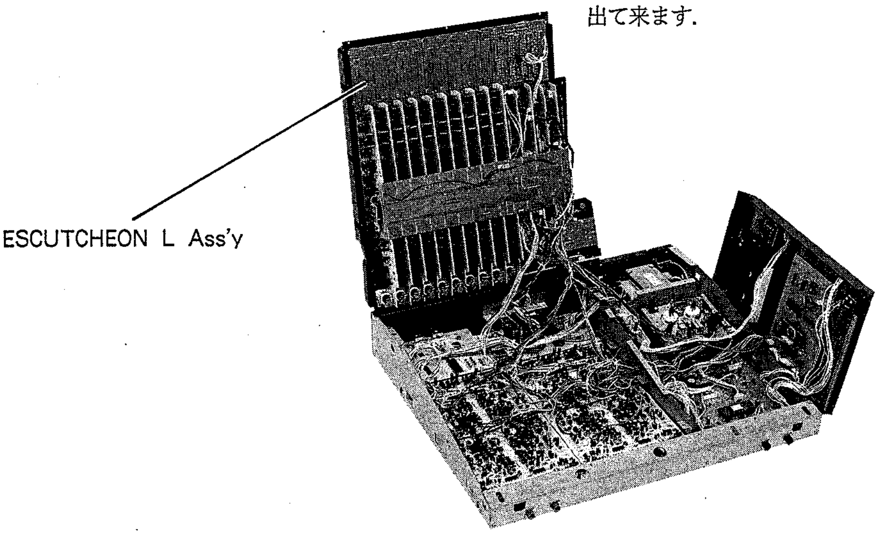

ESCUTCHEON L Ass'y

Fig. 2-4
図2−4

3. PARTS LOCATION
部品配置図

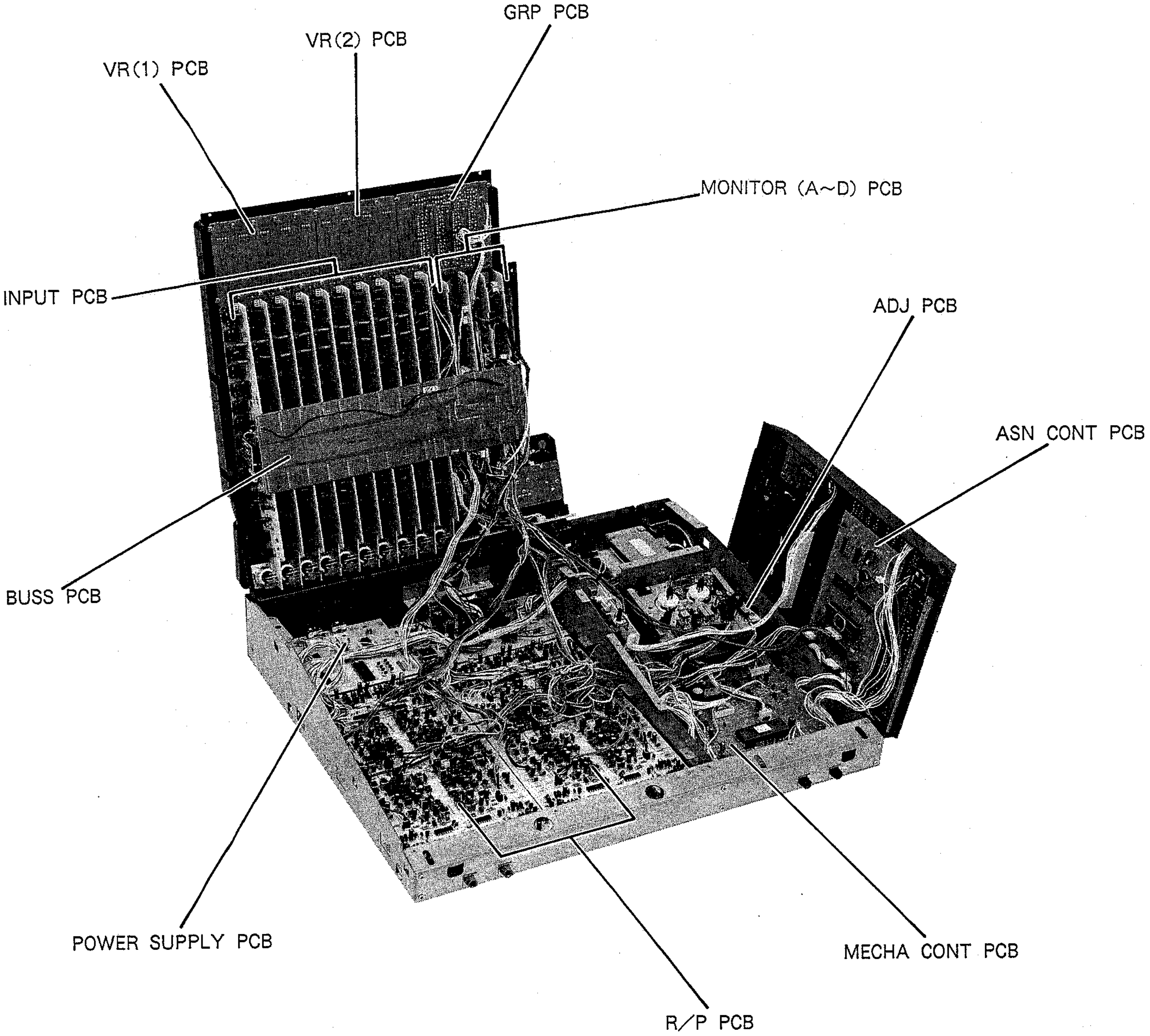

GRP PCB
VR(2) PCB
VR(1) PCB
MONITOR (A~D) PCB
INPUT PCB
ADJ PCB
ASN CONT PCB
BUSS PCB
POWER SUPPLY PCB
MECHA CONT PCB
R/P PCB

Fig. 3-1
図3−1

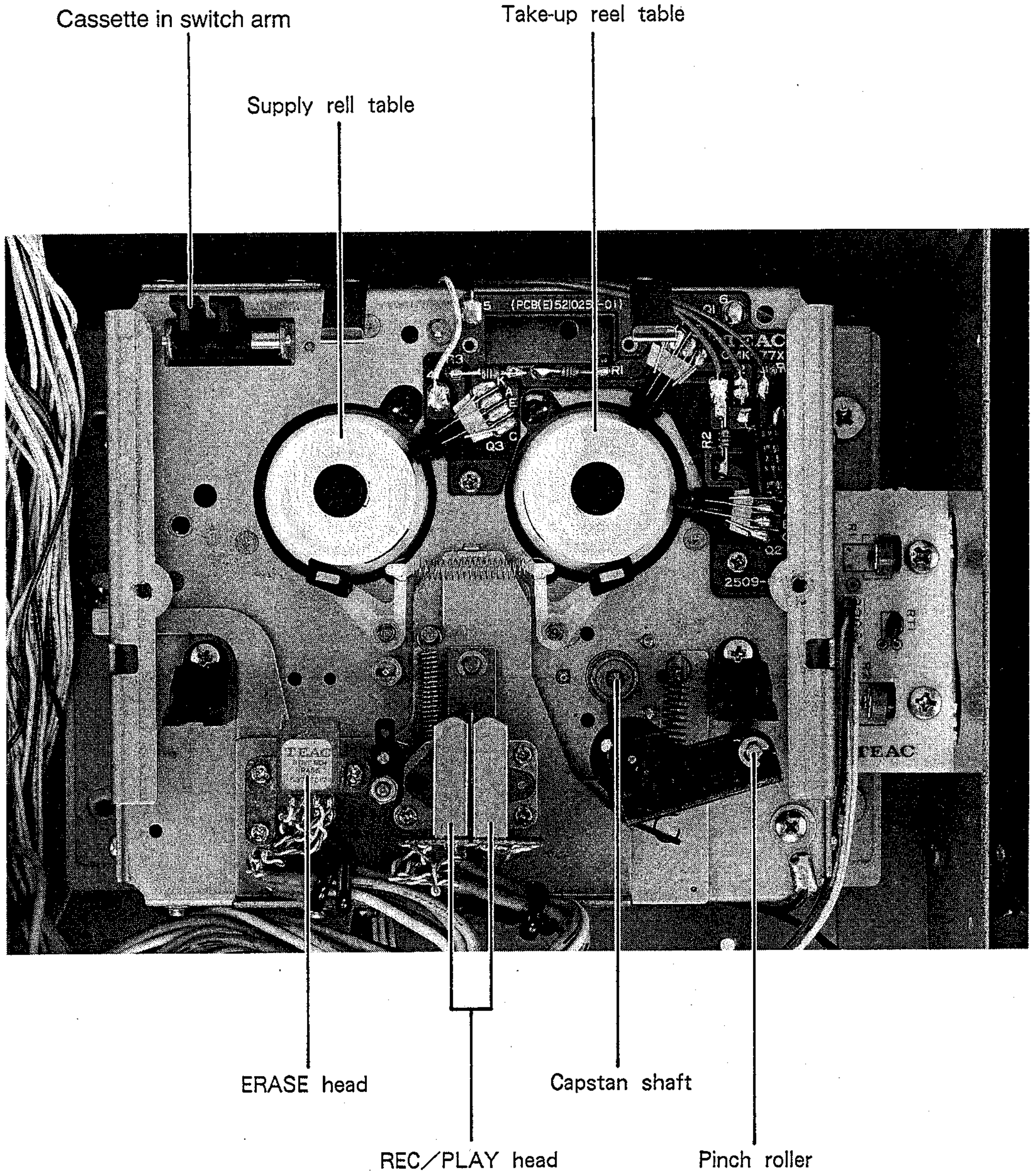

Cassette in switch arm
Take-up reel table
Supply rell table
ERASE head
Capstan shaft
REC／PLAY head
Pinch roller

Fig. 3-2
図3−2

4. MECHANICAL CHECKS AND ADJUSTMENTS

機構部の確認と調整

4-1. TEST MATERIAL

1. **Cassette torque meter**
   - Sansei Rikoh model SRK-CT-W100, for supply torque cheks
     T.T. (Takeup Tension): 0 – 120 g. cm
     B.T. (Back Tension): 0 – 14 g. cm
   - Sony model TW-2231, for fast winding torque checks
     Measurement range: 0 – 200 g. cm
2. **Mirror tape**
   - TEAC MTT-902 (C-90), for tape travel checks
     (See Caution #2 in paragraph 4-3, page 10.)
3. **Performance test tape**
   - TEAC MXT-111, for tape speed and wow/flutter checks ("repro method")
     Signal contained: 3000 Hz/0 dB
   - TEAC MTT-5561 (blank tape, chrome), for wow/flutter checks ("rec/repro method")
   - TEAC MXT-1161, for azimuth and head touch (tape pressure against the heads) checks

4-2. PINCH ROLLER PRESSURE

1. Attach a string to the pinch roller and a spring scale to the string.
2. Push up the cassette switch (transport protection lever) shown in Fig. 3-2, then while holding the cassette switch up, press the PLAY button to engage the pinch roller and capstan shaft.
3. Slowly pull the spring scale against the pinch roller in the direction shown by the arrow in Fig. 4-1, until the pinch roller is fully apart from the capstan shaft, then slowly let the pulling force loose and
4. Note the reading on the spring scale when the pinch roller engages again with the capstan shaft and this starts rotating.
   Specification: 380 to 500 g

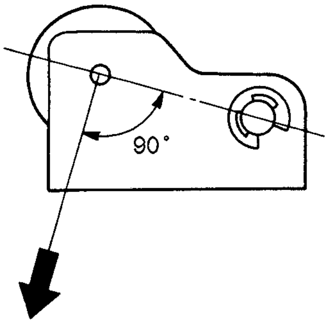


Fig. 4-1

図4−1

4−1. テスト・テープ

1. カセット・トルク・メータ
   - サンセイ理工製　SRK-CT-W100
     テイク・アップ，サプライ・トルク　チェック用
     T.T.: 0 ～120g・cm
     B.T.: 0 ～ 14g・cm
   - ソニー製 TW-2231
     F.FWD,REW トルク　チェック用
     0 ～200g・cm
2. ミラー・テープ
   - TEAC MTT-902　※4-3 項（注意.2）参照
     テープ・パス　チェック用
     C-90　タイプ
3. テスト・テープ
   - TEAC MXT-111
     テープ・スピード　チェック用
     ワウ・フラッタ（再生法）チェック用
     信号レベル:3000Hz/0dB
   - TEAC MTT-5561
     ワウ・フラッタ（録再法）チェック用
     クロム・タイプ，ブランク・テープ
   - TEAC MXT-1161
     アジマス，ヘッド・タッチ　チェック用

4−2. ピンチ・ローラ圧着力

1. カセット・イン・スイッチ・アーム（図3-2)を上方に押して，プレイ・モードにする．測定中，スイッチ・アームは上方に押し続けること．
2. ピンチ・アームにバネ秤を掛ける．
3. ピンチ・ローラがキャプスタン・シャフトから完全に離れるように秤を矢印の方向（図4-1)に引張った後，ピンチ・ローラが再びキャプスタン・シャフトに接触するように徐々に戻す．
4. ピンチ・ローラが回り始めるときの値を読む．
   規格：380 ～500g

4-3. TAPE TRAVEL CHECKS AND ADJUSTMENTS

CAUTION 1: Upon replacement of the record/repro head and/or the erase head, loosely tigthen screws (A) – (G) (Fig. 4-2) then turn them one half back, before starting to perform the following steps. In addition, the procedures require the following materials:

Head adjustment jig "A" (Part no. 5736006600)
Head adjustment jig "B" (Part no. 5736006700)

4－3. テープ走行

注意. 1.録・再ヘッド及び消去ヘッドを交換したときには図4-2 のネジ(A) ～(G) を軽く締め切って，その位置からそれぞれのネジを1.5 回転緩めた状態で調整を始めること．又，この調整を行う為には次の治具が必要です．

ヘッド調整治具 A (P/N : 5736006600)
ヘッド調整治具 B (P/N : 5736006700)

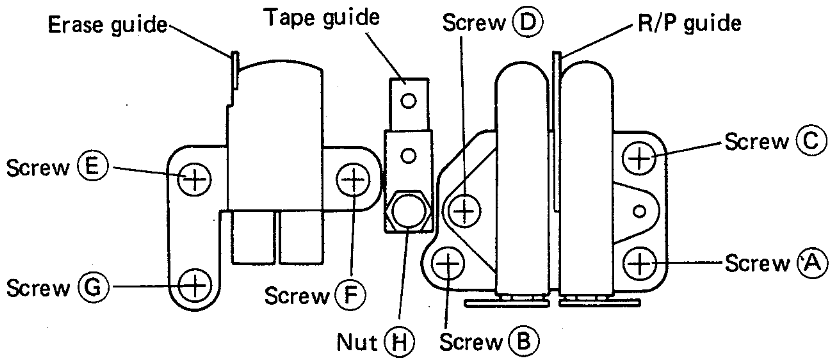


Fig. 4-2
図4－2

CAUTION 2: The 238's 8-channel format head requires much more accuray in tape travel adjustments than any traditional heads. Be sure to use a new TEAC mirror tape which is more suitable to the 238 than the former type. Note that both share the same model name and part number though they differ in aspects as shown in Fig. 4-3.

2.本機の走行調整は 8トラック・ヘッドということで従来カセットに比べてより精度が必要です．そこで調整に必要なミラー・テープ TEAC MTT-902 に関しましては走行系をより精度アップした新タイプのものを必ず使用して下さい．
従来タイプと新タイプでは品番，品名が変わりませんので外観上の違いで区別して下さい．(図4-3 参照)

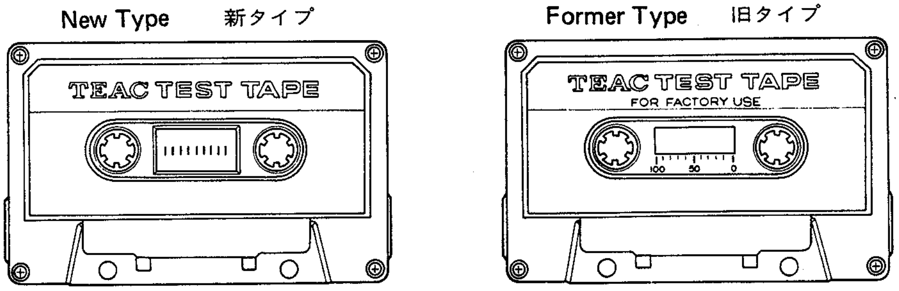


Fig. 4-3
図4－3

1) Erase head height and tilt adjustments

1. Set jigs A and B as shown in Fig. 4-4, and put the deck into Play mode.
2. Adjust screw G until jig B touches the tape guide lower flange.
3. Apply jig B to the head as shown in Fig. 4-5, to check tilt. If necessary, adjust screws E and F *evenly* (until the head is flush with the jig). Rotational amount of both screws E and F should be the same and be limited within 1/8 turn.
4. Check again head height.
5. Repeat steps 2 to 4 until both height and tilt are correct at the same time.

1．消去ヘッドの高さ及びチルト調整

1)．ヘッド調整治具A，Bを図4-4 の様にセットしプレイ・モードにする．
2)．治具Bが消去ヘッドのテープ・ガイドの下側に当る様にネジGで高さを調整する．
3)．図4-5 の様に治具Bをヘッドに当てて，チルトを確認しヘッドが治具に対して垂直になる様に，ネジE，Fを同量(1/8回転以下) 回し調整する．
4)．再度，ヘッドの高さを確認する．
5)．高さ及びチルトが最適になるまで 2) ～4)項を繰り返す．

2) Tape guide height adjustment

6. Adjust nut H until jig B touches the tape guide upper flange.

3) Record/repro head height and tilt adjustments

7. Turn in and out the height adjustment screw C (Fig. 4-2) until jig B touches the tape guide lower flange.
8. Apply jig B to the head as shown in Fig. 4-5, to check tilt. If necessary, adjust screws A and B *evenly* (until the head is flush with the jig). Rotational amount of both screws A and B should be the same and be limited within 1/4 turn.
9. Check again head height.
10. Repeat steps 7 to 9 until both height and tilt are correct at the same time.

2．テープ・ガイドの高さ調整

6)．治具Bがテープ・ガイドの上側に当る様にナットHを回して調整する．

3．録・再ヘッドの高さ及びチルト調整

7)．治具Bがテープ・ガイドの下側に当る様にネジCで高さを調整する．

8)．図4-5 の様に治具Bをヘッドに当てて，チルトを確認しヘッドが治具 Bに対して垂直になる様にネジA，Bを同量(1/4回転以下) 回し調整する．

9)．再度，ヘッドの高さを確認する．

10)．高さ及びチルトが最適になるまで，7)～9)項を繰り返す．

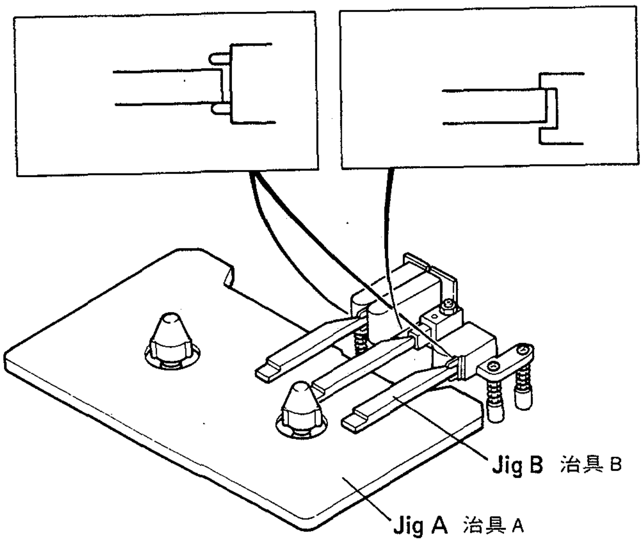


Fig. 4-4
図4-4

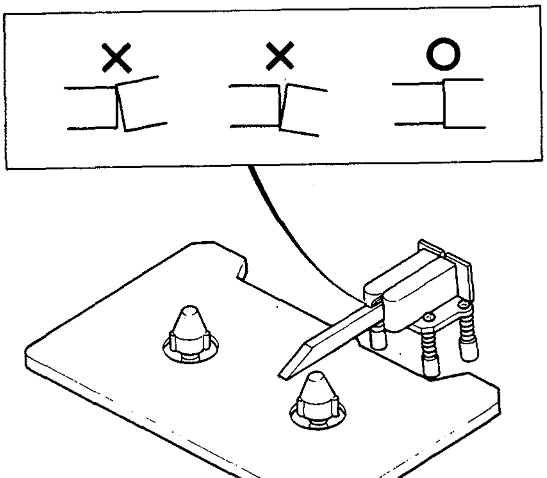


Fig. 4-5
図4-5

4) Head azimuth adjustment

11. Refer to Fig. 4-6 and connect an oscilloscope with the channel 1 TAPE OUT connected to the vertical input of the scope and the channel 4 TAPE OUT connected to the horizontal input of the scope.

4．ヘッド・アジマス調整

11)．図4-6の様に1CHのTAPE OUTをオシロスコープのVER側に，4CHのTAPE OUTをオシロスコープのHOR側に接続する．

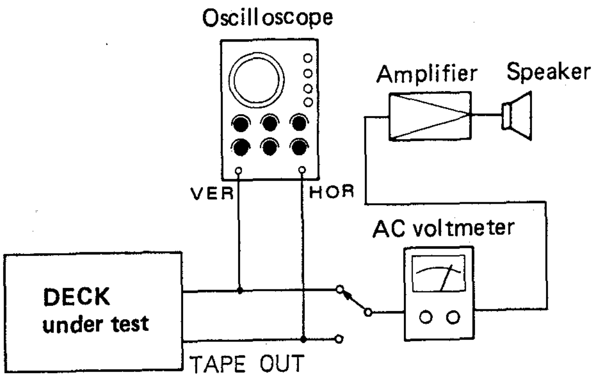


Figure shows measurements being performed on Ch-1 and Ch-4.

Fig. 4-6 Test setup for azimuth check
図4-6 位相測定接続図

12. Load a test tape TEAC MXT-1161.

13. Play the 315-Hz signal on the tape then the 6.3-kHz signal, to check that the outputs from channels 1 and 4 are in phase as seen on the scope. If necessary, adjust screw B (Fig. 4-7).

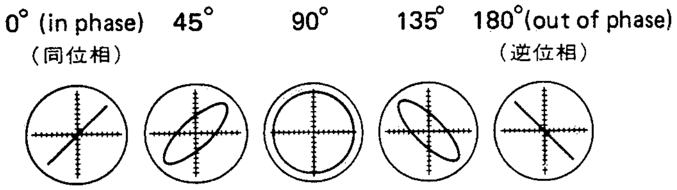


Fig. 4-7 Confirming phase relationship
図4−7 位相

5) Tape travel check

14. Run a mirror tape TEAC MTT-902 and adjust screw C until the running tape rubs on the rec/repro head's tape guide lower flange. Also, check for erase head and tape parallelism (approximate). If necessary, adjust screw F.
When the F screw is adjusted, be sure to recheck for correct height and tilt of the erase head.

6) Head touch (tape pressure against the head)

15. Load a test tape TEAC MXT-1161.

16. Play the 10-kHz signal on the tape, and check that the output level from channels 1 and 8 does not vary beyond the limit of 0.2 dB when back tension is varied by repeatedly applying a slight finger pressure to the left reel.

17. If either of the output levels varies, turn both A and B screws by the same amount (within 1/4 turn), clockwise to remove level variation from the channel 1 output, and counterclockwise to remove level variation from the channel 8 output, then adjust screw C as in step 5.

18. Recheck for no level variation. Repeat steps 16 and 17 until there is no level variation.

19. Recheck azimuth, tape travel, and head touch (from step 11 on). (This is necessary only when serews A and B were moved in step 17.)

7) Head azimuth fine adjustment

20. Play the 315-Hz signal and 6.3 kHz signal on the TEAC MXT-1161 test tape, and adjust screw D until there is no phase difference between channels 5 and 8.

8) Tape travel final check

21. Run the mirror tape, TEAC MTT-902, and check that the tape is running as shown in Fig. 4-8, that is, touching (but without causing curling) the tape guide lower flange of both the erase and record/reproduce heads and the upper flange of the tape guide pin.
Check also to make sure that tape motion is not affected when the run and stop of tape is repeatedly operated.

12). テスト・テープ TEAC MXT-1161を装填する.

13). プレイ・モードにて 315Hzと 6.3kHz を再生したとき1CH と 4CHの位相を合わせる様にネジBを回して調整する.(図4-7 参照)

5. 走行調整

14). ミラー・テープ TEAC MTT-902 を走行させ，録・再ヘッドのテープ・ガイド下側にテープが当る様にネジCで調整する. 又，消去ヘッドとテープがほぼ平行であることを確認し，傾いている場合にはネジFを回して調整する. ネジFを調整した場合は，高さ及びチルトを再調整する.

6. ヘッド・タッチ

15). テスト・テープ TEAC MXT-1161を装填し，プレイ・モードでテープを走行させる.

16). 10kHz を再生し，左リールを軽く手で押さえたり，離したりしてバック・テンションを変え1CH 及び8CH のレベルが変化しない (0.2dB 以下) ことを確認する.

17). もし，どちらか一方のCHのレベルが変動するようであればネジA，Bを同量(1/4回転以下) 回し(1CHがレベル変動する場合にはネジを締める様に,8CHがレベル変動する場合にはネジを緩める様に回す.)，5 項 (走行調整) の要領でネジCを調整する.

18). 再度レベル変動を確認し，レベル変動が無くなるまで17) 項を繰り返す.

19). ネジA，Bを調整した場合には必ず，4 項 (アジマス調整) に戻り，再度それ以後の項目を繰り返す.

7. ヘッド・アジマス微調整

20). テスト・テープ TEAC MXT-1161の 315Hzと 6.3kHz を再生したとき，5CH と 8CHの位相を合わせる様にネジDを回して調整する.

8. テープ走行確認

21). ミラー・テープ TEAC MTT-902 を走行させ，図4-8 の様にテープが消去ヘッド及び録・再ヘッドのテープ・ガイド下側，テープ・ガイド上側に当り，かつテープのカールが無いことをストップ，プレイを繰返し確認する.

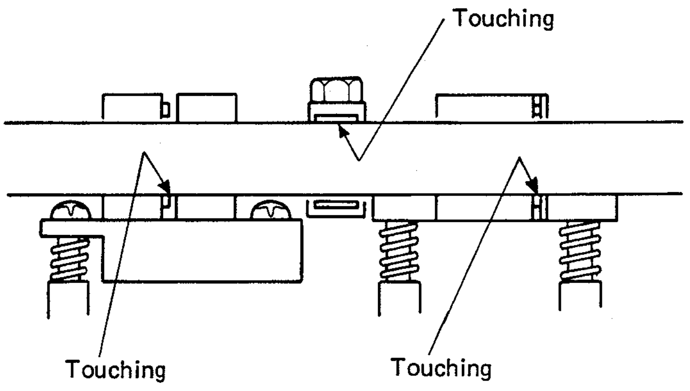


Fig. 4-8
図4−8

4-4. REEL TORQUE

1) Takeup Torque and Back tension

1. Mount a cassette torque meter (SRK-CT-W100), put the deck into Play mode, and note the readings on the torque meter. If reading fluctuates, get the mean value. Readings (or mean values) should be as follows:
   Takeup torque (left reel table): 25 to 65 g. cm
   Back tension (right reel table): 12 to 16 g. cm
2. If back tension is not within the limits, adjust semi-fixed resistor R822 on the Mecha Control PCB (Fig. 4-9) until the torque meter reads 14 g ± 1 g.

2) Fast Winding Torque

3. Mount a cassette torque meter TW-2231 and check its reading while in F.FWD and REW. Readings should be as follows:
   Fast forwarding torque (right reel table): 80 to 180 g. cm
   Rewinding torque (left reel table): 80 to 180 g. cm

4-5. Reel Pulse Adjustment

1. Load the half-housing without tape in it and perform FF operation.
2. Connect an oscilloscope between the pin No. 7 of U15 on the Mechanical control PC board and the ground. Adjust R15 on the Mechanical control PC board so that the waveform becomes duty 50% (Fig. 4-9).
3. In the same manner, adjust R21 to obtain the same result on the waveform when connected between the pin No. 1 of U15 and the ground.
   (Fig. 4-9)

4−4. リール・トルク

1．テイク・アップ・トルク／バック・テンション

1).カセット・トルク・メータ(SRK-CT-W100) を装填後，プレイ・モードにしトルク・メータの値を読む．振れのある場合は中心値とする．規定値は次の通りです．
テイク・アップ・トルク（右リール台）：30〜70g.cm
バック・テンッション　（左リール台）：12〜16g.cm

2).もしバック・テンションが上記値より外れている場合には，バック・テンションの値が 14g±1gになる様に，メカコントロール PCBの半固定抵抗 R822 (図4-9)を回して調整する．

2．F．F／REW　トルク

カセット・トルク・メータ(TW-2231) を装填し，F.F.動作及びREW 動作の起動トルクをそれぞれ測定する．
規定値は次の通りです．
F.F.トルク（右リール台）：80〜180g.cm
REW トルク（左リール台）：80〜180g.cm

4−5. リールパルス調整

1．テープなしのハーフをセットし，FF動作する．
2．メカコントロールPCB のU15 の7 番端子とGND 間にオシロスコープを接続し，波形がデューティ50% になるようメカコントロールPCB のR15 を調整する．(図4-9)
3．同様にU15 の1 番端子とGND 間の波形をR21 で調整する．(図4-9)

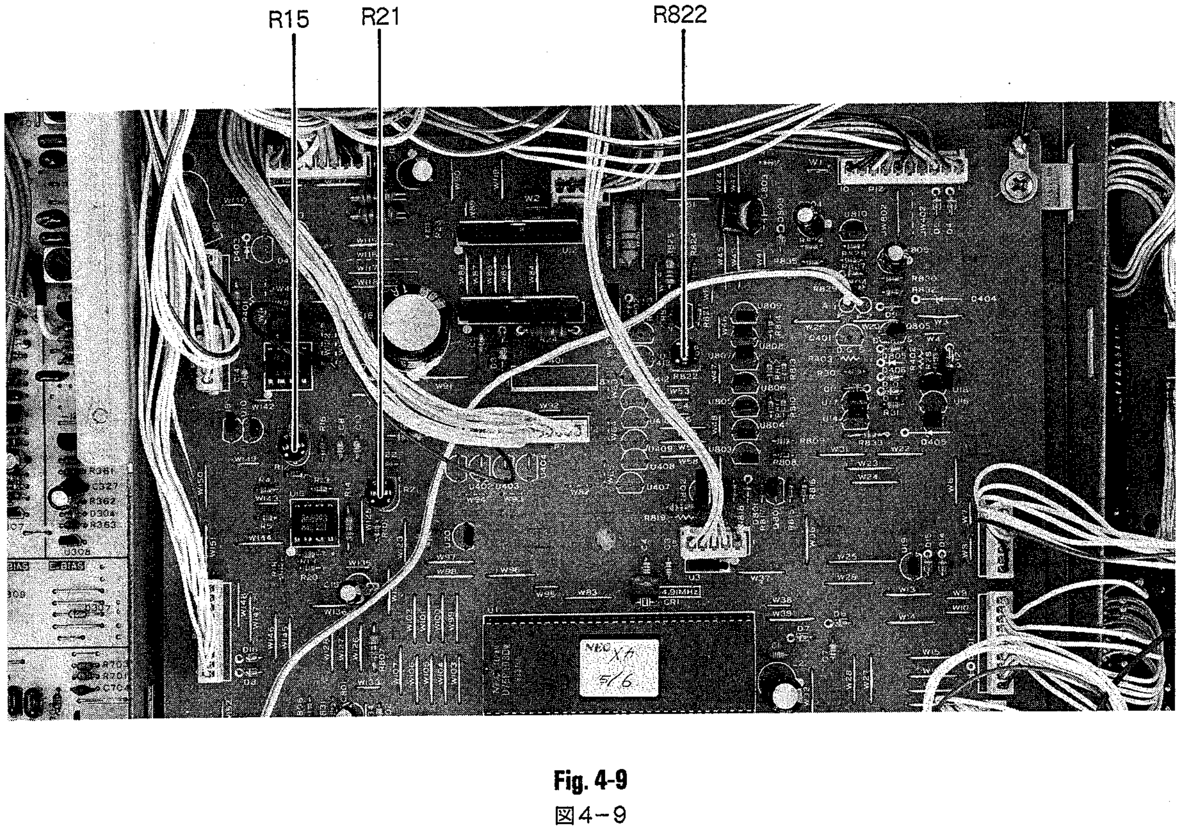


Fig. 4-9
図4−9

4-6. TAPE SPEED

1. Connect a frequency counter to TAPE OUT of any channel.
2. Set the Pitch Control Switch to FIX.
3. Switch power on.
4. Load test tape TEAC MTX-111 and let it run in Play mode for at least 1 minute, to allow the capstan motor to warm up.
5. Adjust R2 on the Adjustment PC board to obtain the tape speed of 3000 Hz ± 5 Hz by playing back the mid-portion of the test tape.
6. After adjustment, check for the following values at both the beginning and end of tape.
   Deviation: 3000 Hz ±45 Hz
   Accuracy: 30 Hz
7. Set the Pitch Control switch to the VARI position.
8. Confirm that if the values are as shown below when the Pitch control is set at the minimum and maximum positions. (TAPE SPEED SW: VAR I)
   Minimum: at end of counterclockwise rotation, 2700 Hz or less
   Maximum: at end of clockwise rotation, 3300 Hz or more.
9. Set the Pitch Control switch to the EXT position and apply 9.6 kHz 5 Vp-p signal to the pin No. 7 of the accessory terminal (D-SUB connector) on the rear panel.
10. Play back the test tape and rotate the semi-fixed resistor R1 (Fig. 4-10) on the Adjustment PC board to obtain 3000 Hz ± 5 Hz on the frequency counter.

4－6. テープ速度

1. 周波数カウンタを TAPE OUT ジャックのいずれかに接続する.
2. ピッチ・コントロール・スイッチを FIXにする.
3. POWER スイッチをオンにする.
4. キャプスタン・モータを回転させウォーミング・アップする為に TEAC MXT-111 を装填し，少なくとも 1分間そのままにしておく.
5. テスト・テープの中間部を再生させて，テープ速度が 3000Hz±5Hz になるようにアジャストPCB のR2を調整する.（図4－10）
6. 調整後，テープの巻き始めと巻き終わりにて下記の値が得られるか確認する.
   速度偏差：3000Hz±45Hz
   変動幅　：30Hz
7. ピッチ・コントロール・スイッチを VARI にする.
8. ピッチ・コントロールを最少，最大に回して下記の値が得られるか確認する. (VARI)
   最少：充分反時計方向にセットして 2700Hz 以下
   最大：充分時計方向にセットして 3300Hz 以上
9. ピッチ・コントロール・スイッチを EXTにし，リア・パネルのアクセサリー端子 (D-SUB ・コネクタ) の7 ピンに 9.6kHz 5Vp-pを加える.
10. テスト・テープを再生し周波数カウンタが 3000Hz ±5Hz を示す様にアジャスト PCBの半固定抵抗 R1(図4-10) を回して調整する.

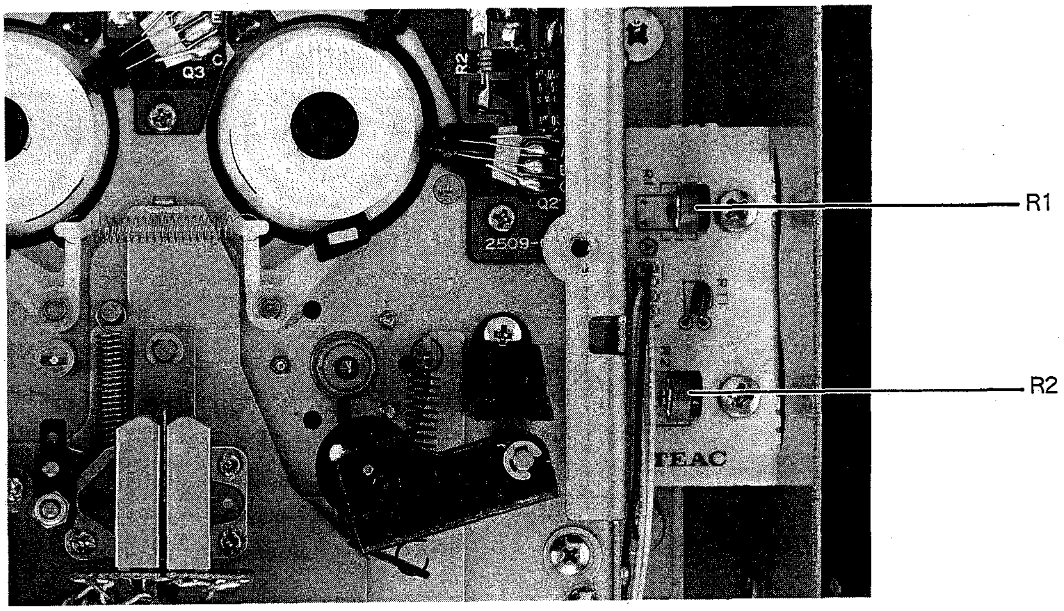


Fig. 4-10
図4－10

4-7. Wow and Flutter

Note: Run the tape and take measurements at the beginning, mid-portion and end of tape. (In the case of half-housing, exclude one graduation at the beginning and end of tape running.)

Playback Method

1. Connect the wow-flutter meter to the tape deck as shown in Fig. 4-11.

4−7. ワウ・フラッタ

注意：測定はテープの巻き始め，中間部，巻き終わりでそれぞれ行なってください.(但しハーフの巻き始めと巻き終わりの1 目盛りを除く.)

再生法.

1．図4-11の様にワウ・フラッタ・メータをデッキに接続する.

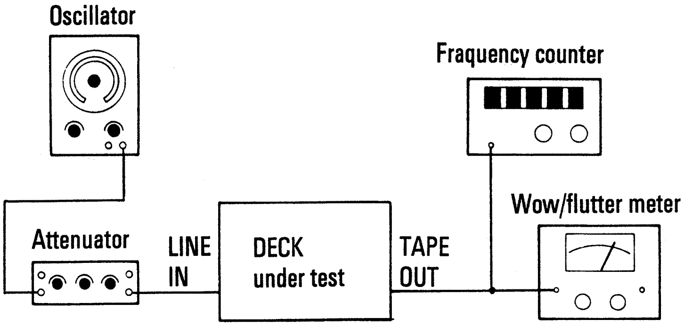


Fig. 4-11

図4−11

2. Load the test tape TEAC MXT-111 or equivalent and perform playback.
3. Measure the wow-flutter value.
   Specification: less than 0.08% WRMS (weighted audibility value)

Recording/Playback Method

4. Load the blank test tape TEAC MTT-5561 or equivalent and record 3000 Hz signal onto the tape.
5. Play back the recorded portion.
6. Measure the wow-flutter value.
   Specification; less than 0.3% RMS (non-weighted audibility value)

2．テスト・テープ TEAC MXT-111 または相当品を装填し再生する.

3．ワウ・フラッタ値を測定する.
規格：0.08%WRMS 以下（聴感補正値）

録再法.

4．ブランク・テスト・テープ TEAC MTT-5561または相当品を装填し，3000Hzを録音する.

5．録音した部分を巻き戻して再生する.

6．ワウ・フラッタ値を測定する.
規格：0.3%RMS 以下（非聴感補正値）

5. CHECKING OF SIGNALS IN MIXER SECTION AND SETTINGS OF CONTROLS/SWITCHES AND FADER CONTROLS

ミキサー部の信号チェックと各つまみ、フェーダ、ノブのセット

5-1. AUX-1 MASTER CONTROLS (INSERT JACK —> AUX-1 OUT JACK: Figure 5-1)

1. Set one of the AUX-1 controls at the PRE position and the AUX MASTER-1 control at the maximum (full clockwise) position.
2. Make sure that when the 1 kHz −10 dBV signal is input to the INSERT jack for the same channel selected in the Step 1 above, the output level at the AUX-1 OUT jack will be −2 dBV ± 1.5 dB.
3. Slowly rotate the AUX-1 MASTER control counterclockwise to decrease the output level and stop rotating the control at −10 dBV output. At this point, ensure that the AUX-1 MASTER control is set approx. 2 o'clock position.
4. Set all the AUX-1 controls at the PRE position and confirm that the output level for each channel at the AUX-1 OUT jack will be −10 dBV ± 1.5 dB when the 1 kHz, −10 dBV signal is input to the respective INSERT jacks.

5-2. INPUT FADER CONTROLS (INSERT JACK ➡ AUT-1 OUT JACK : Figer 5-1)

1. Place the unit in the status (AUX-1 MASTER control is set) sa described in the Step 3 of Section 5-1 and confilm the output level at the AUX-1 out jack will be −2dBV ± 1dB when an AUX-1 control is set to the POST position and the Input Fader control for the same channel is set at the maximum position.
2. Gradually slide down the same input Fader control to the point where the output level at the AUX-1 OUT jack becomes −10dBV. By maintaining this state, make sure that the Input Fader control is positioned at the dark shade area (between "7" and "8").
3. In the same manner, adjust all other Input Fader controls.

5−1. AUX 1 MASTERつまみ

(INSERT--->AUX 1 OUT : 図5−1)

1. AUX 1 つまみをPRE , AUX 1 MASTERつまみを最大にセットする.
2. INSERTに 1KHz,-10dBVを入力したとき, AUX 1 OUT の出力レベルが -2dBV±1.5dB であることを確認する.
3. 次に AUX 1 MASTER を少しずつ絞っていき, 出力が-10dBV になるようにセットする. このとき, AUX 1 MASTERがおおよそ 2時の位置にあることを確認する.
4. 全ch, AUX 1 つまみをPRE にセットして, それぞれINSERTに1KHz,-10dBV を入力したとき AUX 1 OUTの出力が -10dBV ±1.5dB であることを確認する.

5−2. INPUTフェーダー

(INSERT--->AUX 1 OUT : 図5−1)

1. 5−1項ステップ3(AUX 1 MASTER がセットされた状態)で, AUX 1 つまみを POST , INPUT フェーダーを最大にセットしたとき, AUX 1 OUT の出力レベルが, -2dBV ±1.5dBであることを確認する.
2. 次に INPUTフェーダーを少しずつ絞っていき, 出力が -10dBV になるようにセットする. このとき, INPUT フェーダーが網目(7〜8 目盛り) の位置にあることを確認する.
3. 同様に全ch, INPUT フェーダーのセットを行う.

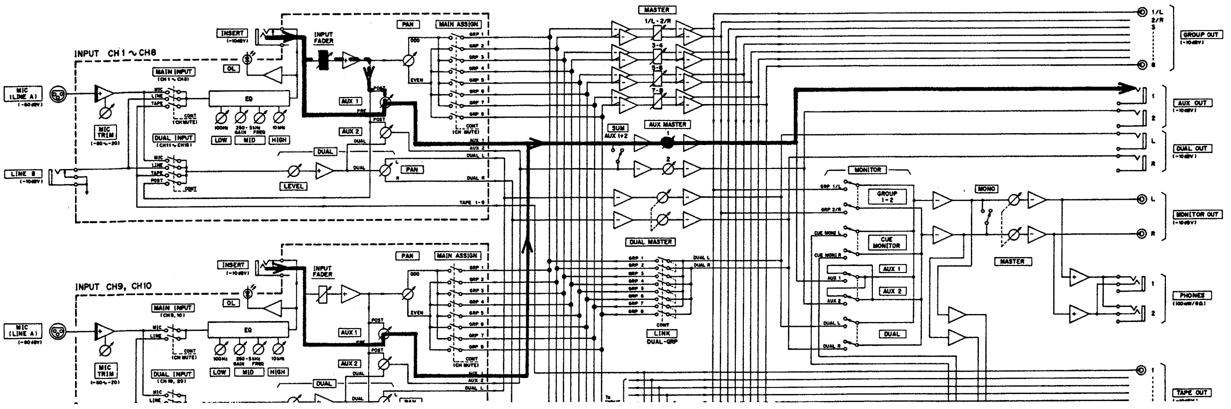

INPUT CH1～CH8
MIC (LINE A)
LINE B
MIC TRIM
MAIN INPUT
DUAL INPUT
INSERT
OL
EQ
LOW
MID
HIGH
INPUT FADER
AUX 1
AUX 2
DUAL
PAN
LEVEL
MAIN ASSIGN
MASTER
SUM
AUX MASTER
DUAL MASTER
LINK
MONITOR
GROUP
CUE MONITOR
MONO
GROUP OUT
AUX OUT
DUAL OUT
MONITOR OUT
PHONES
TAPE OUT
INPUT CH9, CH10

Fig. 5-1 / 図5−1

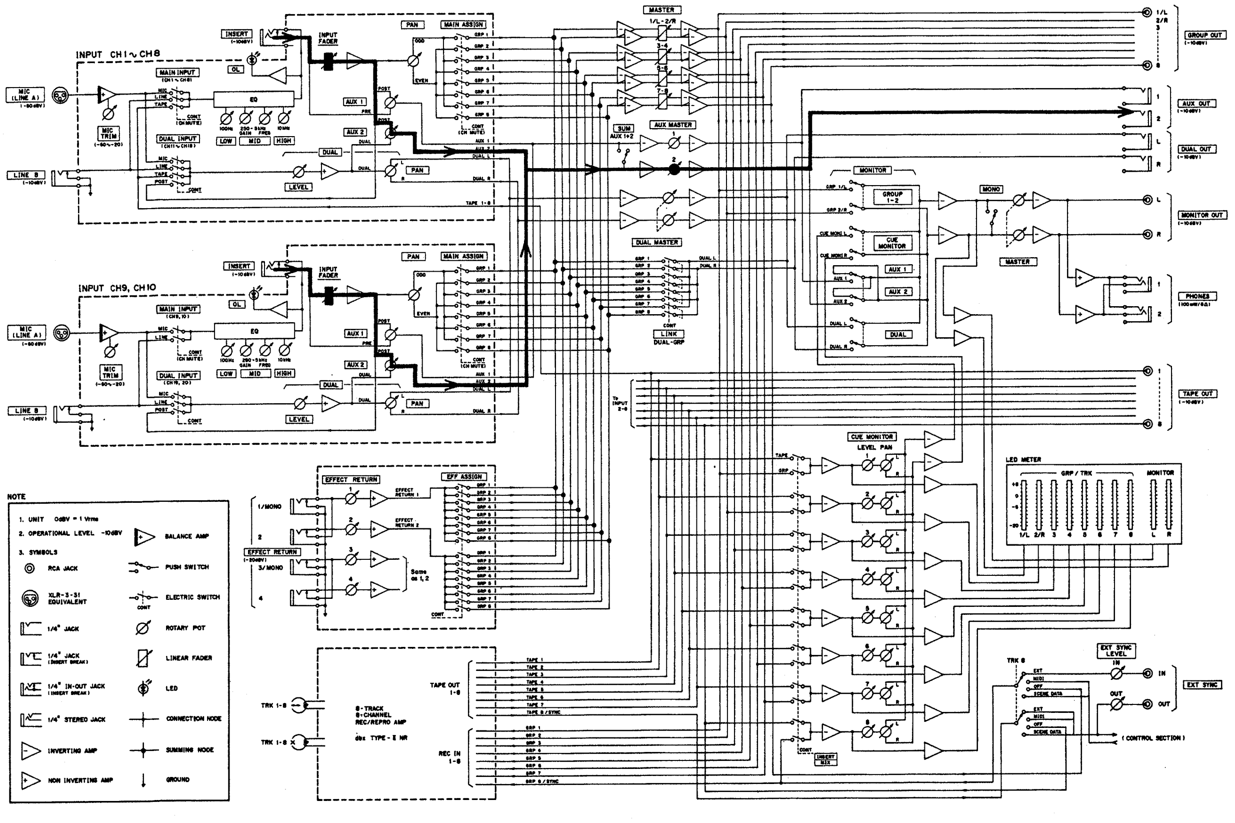
5-3. AUX-2 MASTER CONTROLS (INSERT JACK —> AUX-2 OUT JACK: Figure 5-2)

1. By keeping the status (the INPUT Fader controls are set) as described in the Section 5-2, place one of the AUX-2 controls at the POST position and the AUX-2 MASTER control at the maximum (full clockwise) position. Then confirm that the output level at the AUX-2 OUT jack is −2 dBV ± 1.5 dB.
2. Gradually rotate the AUX-2 MASTER control counterclockwise to the point where the output level becomes −10 dBV, and make sure the AUX-2 MASTER control is set approx. 2 o'clock position.
3. Place all other AUX 2 controls at the POST position and check the output level at the AUX-2 OUT jacks for all channels. The output level should be −10 dBV ± 1.5 dB for every channel.

5−3. AUX 2 MASTERつまみ

（INSERT--->AUX 2 OUT : 図5−2）

1. 5−2項(INPUTフェーダーがセットされた状態)で, AUX 2 つまみをPOST, AUX 2 MASTERつまみを最大にセットしたとき, AUX 2 OUT の出力レベルが, -2dBV ±1.5dB であることを確認する.
2. 次に AUX 2 MASTER を少しずつ絞っていき, 出力が -10dBV になるようにセットする. このとき, AUX 2 MASTERがおおよそ 2時の位置にあることを確認する.
3. 全ch, AUX 2 つまみをPOSTにセットして, それぞれ AUX 2 OUT の出力を確認する. このとき, 出力レベルは -10dBV ±1.5dB であること.



INPUT CH1～CH8
INPUT CH9, CH10
MIC (LINE A)
LINE B (-10dBV)
MIC TRIM
MAIN INPUT
DUAL INPUT
INSERT
INPUT FADER
EQ
LOW
MID
HIGH
OL
AUX 1
AUX 2
DUAL
PAN
LEVEL
MAIN ASSIGN
MASTER
SUM
AUX MASTER
DUAL MASTER
LINK
MONITOR
GROUP 1-2
CUE MONITOR
MONO
GROUP OUT
AUX OUT
DUAL OUT
MONITOR OUT
PHONES
TAPE OUT
EFFECT RETURN
EFF ASSIGN
CUE MONITOR LEVEL PAN
LED METER
EXT SYNC LEVEL
EXT SYNC
8-TRACK 8-CHANNEL REC/REPRO AMP
dbx TYPE-II NR
TAPE OUT 1-8
REC IN 1-8
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL -10dBV
3. SYMBOLS
RCA JACK
XLR-3-31 EQUIVALENT
1/4" JACK
1/4" JACK (INSERT BREAK)
1/4" IN-OUT JACK (INSERT BREAK)
1/4" STEREO JACK
INVERTING AMP
NON INVERTING AMP
BALANCE AMP
PUSH SWITCH
ELECTRIC SWITCH
CONT
ROTARY POT
LINEAR FADER
LED
CONNECTION NODE
SUMMING NODE
GROUND

Fig. 5-2 / 図5−2

SUM Switch Check

1. Make sure that the output level at the Monitor (L,R) Out terminals is −10 dBV ± 1.5 dB when the AUX-1.2 switch is turned on.
2. Next, ensure that the output level at the Monitor (L and R) Out terminals is −16 dBV ± 2 dB when the AUX-1 Master knob is set at the minimum position and the SUM switch is turned on. (The difference between "L" and "R" should be less than 1 dB.)

SUMスイッチ・チェック

5−3項を終了後,

1. AUX1,2スイッチをオンにしたとき, MONITOR(L,R)OUT の出力レベルが-10dBV±1.5dB であることを確認する.
2. 次に, AUX 1 MASTERつまみを最少にしてSUM スイッチをオンにしたとき, MONITOR(L,R)OUT の出力レベルが-16dBV±2dB になることを確認する. (L,Rの差は1dB 以内)

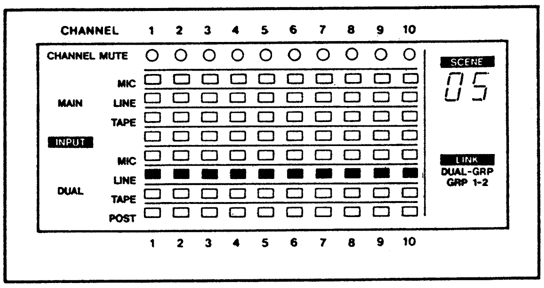
5-4. DUAL LEVEL CONTROLS (LINE INPUT JACK —> AUX-2 OUT JACK: Figure 5-3)

1. Keep the status (the AUX-2 MASTER control is set) as specified in the Section 5-3 and set one of the AUX-2 controls at the DUAL position and the DUAL LEVEL control for the same channel as the AUX-2 control at the maximum position then set up the INPUT as indicated in the illustration.
2. Ensure that when 1 kHz −10 dBV is fed to the LINE INPUT jack, the output level at the AUX-2 OUT jack becomes −2 dBV ± 1 dB.
3. Slowly decrease the output level by revolving the DUAL LEVEL control and set it at −10 dBV output. At this point, confirm that the DUAL LEVEL control is positioned between 2 and 3 o'clock positions.
4. Adjust and set the DUAL LEVEL controls for all other channels by repeating the above procedures.

5−4. DUAL LEVELつまみ

(LINE IN--->AUX 2 OUT ： 図5−3)

1．５−３項(AUX 2 MASTER がセットされた状態) で，AUX 2 つまみをDUAL，DUAL LEVELつまみを最大にセットし，INPUT を図の様に設定する．
2．LINE IN に 1KHz,-10dBVを入力したとき，AUX 2 OUT の出力レベルが -2dBV±1.5dB であることを確認する．
3．次に DUAL LEVEL を少しずつ絞っていき，出力が -10dBV になるようにセットする．このときDUAL LEVELがおおよそ 2 時の位置にあることを確認する．
4．同様に全ch，DUAL LEVELのセットを行う．


CHANNEL
1 2 3 4 5 6 7 8 9 10
CHANNEL MUTE
SCENE
05
MAIN
MIC
LINE
TAPE
INPUT
DUAL
MIC
LINE
TAPE
POST
LINK
DUAL-GRP
GRP 1-2
1 2 3 4 5 6 7 8 9 10

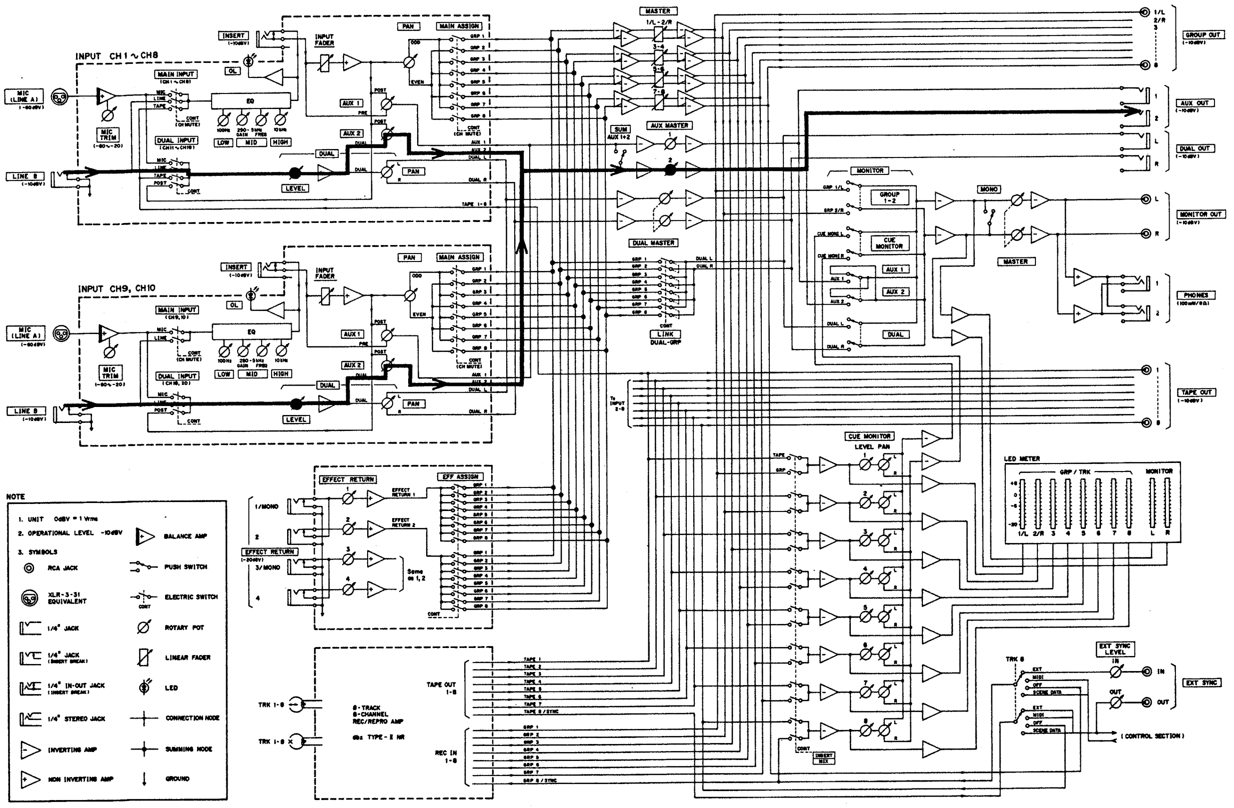

INPUT CH1～CH8
INPUT CH9, CH10
MIC (LINE A)
LINE B
INSERT
INPUT FADER
MAIN INPUT
EQ
LOW
MID
HIGH
MIC TRIM
DUAL INPUT
OL
PAN
MAIN ASSIGN
AUX 1
AUX 2
DUAL
LEVEL
MASTER
SUM AUX 1+2
AUX MASTER
DUAL MASTER
LINK DUAL-GRP
MONITOR
GROUP 1-2
CUE MONITOR
MONO
GROUP OUT
AUX OUT
DUAL OUT
MONITOR OUT
PHONES
TAPE OUT
EFFECT RETURN
EFF ASSIGN
TAPE OUT 1-8
REC IN 1-8
TRK 1-8
8-TRACK 8-CHANNEL REC/REPRO AMP dbx TYPE-II NR
CUE MONITOR LEVEL PAN
LED METER
GRP / TRK
EXT SYNC LEVEL
EXT SYNC
IN
OUT
(CONTROL SECTION)
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL -10dBV
3. SYMBOLS
RCA JACK
XLR-3-31 EQUIVALENT
1/4" JACK
1/4" JACK (INSERT BREAK)
1/4" IN-OUT JACK (INSERT BREAK)
1/4" STEREO JACK
INVERTING AMP
NON INVERTING AMP
BALANCE AMP
PUSH SWITCH
ELECTRIC SWITCH
ROTARY POT
LINEAR FADER
LED
CONNECTION NODE
SUMMING NODE
GROUND

Fig. 5-3 / 図5−3

5-5. DUAL MASTER CONTROL (LINE INPUT JACK —> DUAL OUT JACK: Figure 5-4)

1. Place the unit in the status (the DUAL LEVEL controls are set) as mentioned in the previous Section 5-4 and set a DUAL PAN control to the "L" position then set the DUAL MASTER control at the maximum position. Under this condition, make sure that the output level at the DUAL (L) OUT jack is −2 dBV ± 1.5 dB.
2. Slowly lower the output level by rotating the DUAL MASTER control and set the output level at −10 dBV. At this point, ensure the DUAL MASTER control is positioned approx. 2 o'clock position.
3. Set the DUAL PAN controls for all channels to the "L" position and check the output level at the DUAL (L) OUT jack for each channel. The output level should be −10 dBV ± 1.5 dB.
4. Place the DUAL PAN controls for all channels to the "R" position and ensure the output at every DUAL (R) OUT jack is −10 dBV ± 1.5 dB for each channel. Also make sure that the output level at each DUAL OUT jack is −12 dBV ± 1.5 dB when the DUAL PAN controls are set at their center position.

5−5. DUAL MASTERつまみ

(LINE IN--->DUAL OUT : 図5−4)

1．5−4項(DUAL LEVEL がセットされた状態) で DUAL PAN をL側に，DUAL MASTER つまみを最大にセットしたとき，DUAL(L) OUT の出力レベルが，-2dBV ±1.5dB であることを確認する．
2．次に DUAL MASTER つまみを少しずつ絞っていき，出力が -10dBVになるようにセットする．このとき，DUAL MASTER がおおよそ 2時の位置にあることを確認する．
3．全ch，DUAL PANをL側にセットして，それぞれDUAL(L) OUT の出力を確認する．このとき，出力レベルは -10dBV ±1.5dB であること．
4．次に DUAL PAN をR側にセットして，同様にDUAL(R) OUT に -10dBV ±1.5dB が出力されることを確認する．
また，DUAL PANをセンターにセットしたとき DUAL(L・R) OUT の出力レベルが -12dBV ±1.5dB であることを確認する．

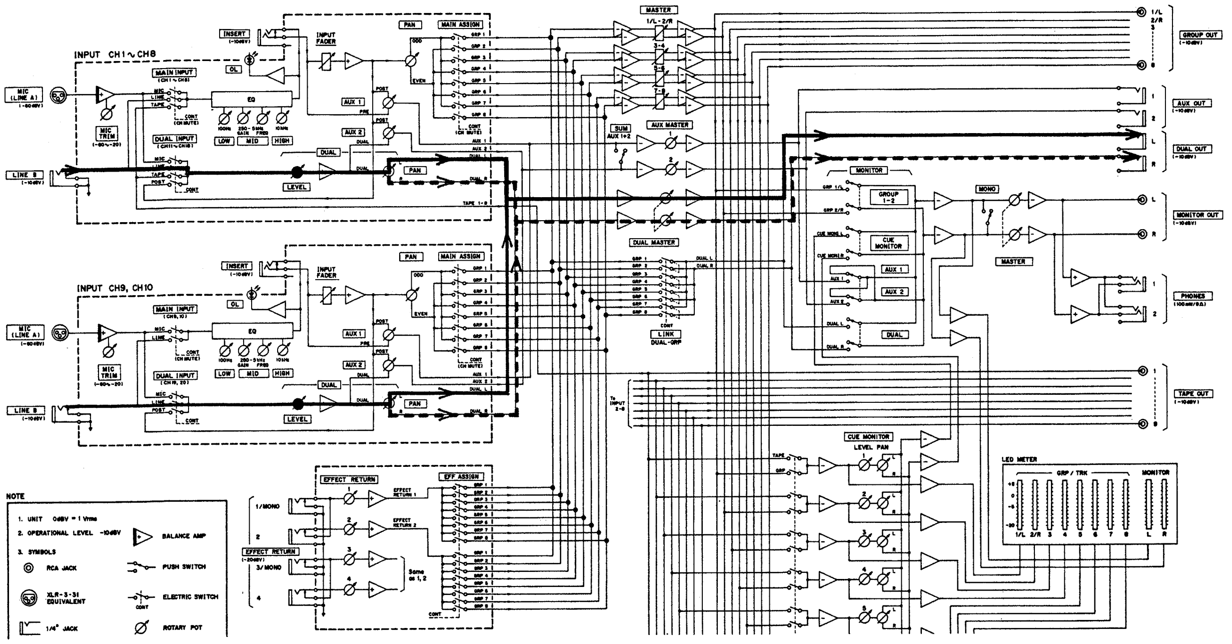

INPUT CH1∼CH8
INPUT CH9, CH10
MIC (LINE A) (−60dBV)
LINE B (−10dBV)
MIC TRIM (−60∼−20)
MAIN INPUT (CH1∼CH8)
MAIN INPUT (CH9, 10)
DUAL INPUT (CH11∼CH18)
DUAL INPUT (CH19, 20)
MIC
LINE
TAPE
POST
CONT (CH MUTE)
INSERT (−10dBV)
OL
EQ
100Hz
250−5kHz GAIN FREQ
10kHz
LOW
MID
HIGH
INPUT FADER
PAN
MAIN ASSIGN
ODD
EVEN
AUX 1
AUX 2
PRE
POST
DUAL
LEVEL
GRP 1
GRP 8
DUAL L
DUAL R
TAPE 1−8
MASTER
1/L−2/R
3−4
5−6
7−8
SUM AUX 1+2
AUX MASTER
DUAL MASTER
LINK DUAL-GRP
MONITOR
GRP 1/L
GRP 2/R
GROUP 1−2
CUE MON L
CUE MON R
CUE MONITOR
DUAL
MONO
GROUP OUT (−10dBV)
AUX OUT (−10dBV)
DUAL OUT (−10dBV)
MONITOR OUT (−10dBV)
PHONES (100mW/8Ω)
TAPE OUT (−10dBV)
To INPUT 2−8
CUE MONITOR LEVEL PAN
TAPE
GRP
LED METER
GRP / TRK
+8
0
−5
−20
1/L 2/R 3 4 5 6 7 8 L R
EFFECT RETURN
EFF ASSIGN
1/MONO
3/MONO
EFFECT RETURN 1
EFFECT RETURN 2
EFFECT RETURN (−20dBV)
Same as 1, 2
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL −10dBV
3. SYMBOLS
BALANCE AMP
RCA JACK
PUSH SWITCH
XLR-3-31 EQUIVALENT
ELECTRIC SWITCH
1/4" JACK
ROTARY POT

Fig. 5-4 / 図5−4

MONO Switch Check

1. Confirm that the output level at the Monitor (L) Out terminal is −10 dBV ± 1.5 dB when the Dual switch is turned on and set to the Dual Pan (L).
2. Also confirm that the output level at the Monitor (R) Out terminal is −10 dBV ± 1.5 dB when the Dual Pan is changed to "R."
3. Next, make sure that the output level at the Monitor (L and R) Out terminals is −16 dBV ± 1.5 dB when the Mono switch is turned on. (The difference between the "L" and "R" should be less than 1 dB.)

MONOスイッチ・チェック

5−5項を終了後，

1．DUALスイッチをオン，DUAL PAN(L) にしたとき，MONITOR (L)OUTの出力レベルが-10dBV±1.5dB であることを確認する．
2．また，DUAL PANをR に振ったとき，MONITOR(R)OUT の出力レベルが-10dBV±1.5dB であることを確認する．
3．次に，MONOスイッチをオンにしたとき，MONITOR(L,R)OUT の出力レベルが-16dBV±1.5dB になることを確認する．(L,Rの差は1dB 以内)

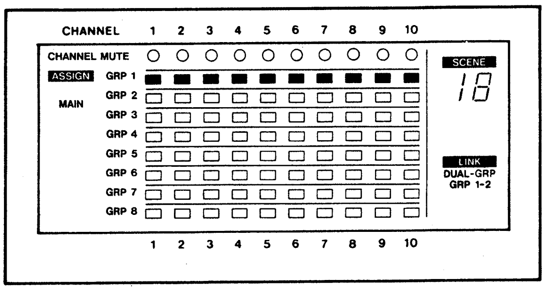
5-6. GROUP MASTER FADER CONTROLS (LINE IN JACK —> GROUP OUT JACK: Figure 5-5)

1. Put the unit in the status (the INPUT Fader controls are set) as stated in the section 5-2 and place a Main PAN control to the ODD position, the GROUP 1/L-2/R MASTER Fader control at the maximum position (labeled "10"), and the EQ control on the same channel at its center position, then set up the ASSIGN, INPUT as shown in each illustration.
2. Make sure that when the 1 kHz —10 dBV signal is input to the LINE INPUT jack on the same channel as the Main PAN control, the output level at the GROUP-1 OUT jack will be —2 dBV ± 1.5 dB.
3. Slide down slowly the GROUP 1/L-2/R MASTER Fader control and set at the point where the output level becomes —10 dBV. At this point, confirm that the GROUP 1/L-2/R MASTER Fader control is set at the dark shade area (between "7" and "8").
4. Adjust the GROUP 3-4, 5-6 and 7-8 MASTER Fader controls by following the above procedure.
5. Set the Main PAN controls for all channels at the ODD position and confirm the output level at the GROUP-1 OUT jack for each channel is —10 dBV ± 1.5 dB. Also confirm the output level at the GROUP-3, 5 and 7 OUT jacks is —10 dBV ± 1 dB.
6. Place the Main PAN controls for all channels at the EVEN position and confirm the output level at the GROUP-2 OUT jack is —10 dBV ± 1.5 dB. Also confirm the output level at the GROUP-4 OUT jack is —10 dBV ± 1.5 dB. Next, place the Main PAN controls for all channels at their center position and make sure the output level at the GROUP OUT jacks is —12 dBV ± 1.5 dB.

5−6. GRP MASTERフェーダー

(LINE IN--->GROUP OUT : 図5−5)

1. 5−2項(INPUTフェーダーがセットされた状態) で MAIN PAN をODD , GRP 1/L-2/R MASTERフェーダーを最大, EQつまみをセンターにセットし, ASSIGN,INPUTをそれぞれ図の様に設定する.
2. LINE IN に 1KHz,-10dBVを入力したとき, GRP 1 OUT の出力レベルが-2dBV ±1.5dB であることを確認する.
3. 次に GRP 1/L-2/R MASTER フェーダーを少しずつ絞っていき, 出力が -10dBV になるようにセットする. このとき GRP 1/L-2/R MASTER が, 網目(7〜8 目盛り) の位置にあることを確認する.
4. 同様に GRP 3-4,5-6,7-8 MASTER フェーダーをセットする.
5. 全ch, MAIN PANをODD にセットして, それぞれ GRP 1 OUT の出力を確認する. このとき, 出力レベルは -10dBV ±1.5dB であること. 同様にGRP 3,5,7 OUT の出力も確認する.
6. 次に MAIN PAN を全ch, EVENにセットして, それぞれ GRP 2 OUTに -10dBV ±1.5dB が出力されることを確認する. 同様に GRP 4,6,8 OUTの出力も確認する.
また, MAIN PANをセンターにセットしたときGRP OUT の出力レベルが -12dBV ±1.5dB であることを確認する.


CHANNEL
1 2 3 4 5 6 7 8 9 10
CHANNEL MUTE
ASSIGN
MAIN
GRP 1
GRP 2
GRP 3
GRP 4
GRP 5
GRP 6
GRP 7
GRP 8
SCENE
18
LINK
DUAL-GRP
GRP 1-2
1 2 3 4 5 6 7 8 9 10

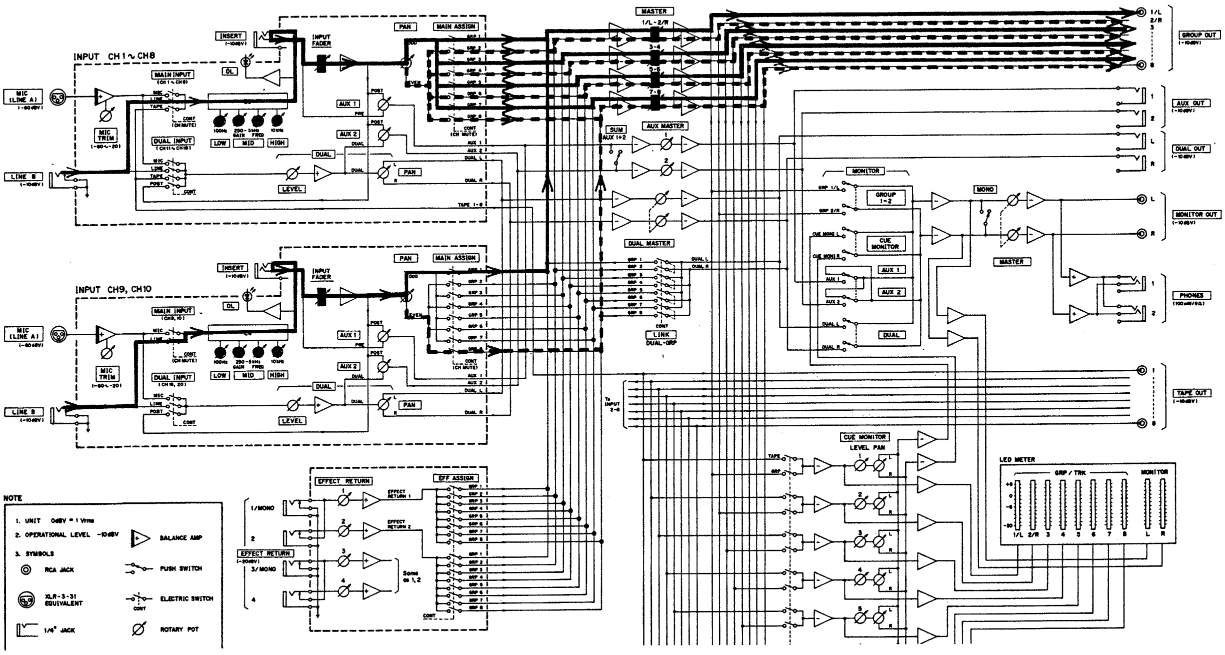

INPUT CH1〜CH8
INPUT CH9, CH10
MIC (LINE A) (-60dBV)
LINE B (-10dBV)
INSERT (-10dBV)
MAIN INPUT
MIC TRIM (-60〜-20)
DUAL INPUT
LOW
MID
HIGH
INPUT FADER
OL
AUX 1
AUX 2
DUAL
LEVEL
PAN
MAIN ASSIGN
ODD
EVEN
MASTER
1/L-2/R
3-4
5-6
7-8
SUM AUX 1+2
AUX MASTER
DUAL MASTER
LINK DUAL-GRP
MONITOR
GROUP 1-2
CUE MONITOR
MONO
MASTER
GROUP OUT (-10dBV)
AUX OUT (-10dBV)
DUAL OUT (-10dBV)
MONITOR OUT (-10dBV)
PHONES
TAPE OUT (-10dBV)
EFFECT RETURN
EFF ASSIGN
EFFECT RETURN (-20dBV)
1/MONO
3/MONO
CUE MONITOR LEVEL PAN
LED METER
GRP / TRK
MONITOR
1/L 2/R 3 4 5 6 7 8 L R
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL -10dBV
BALANCE AMP
3. SYMBOLS
RCA JACK
PUSH SWITCH
XLR-3-31 EQUIVALENT
ELECTRIC SWITCH
CONT
1/4" JACK
ROTARY POT

Fig. 5-5 / 図5−5

5-7. MONITOR MASTER CONTROL (INSERT JACK —> MONITOR OUT JACK: Figure 5-6)

1. Put the unit in the state (the AUX-1 MASTER control is set) as indicated in the Step 4 of Section 5-6 and turn the AUX-1 switch on and then set the MONITOR MASTER control at the maximum position. Keep this status and check to see if the output level at the MONITOR OUT jacks is −2 dBV ± 1.5 dB.
2. Rotate gradually the MONITOR MASTER control to obtain the output level of −10 dBV at the MONITOR OUT jack and confirm the MONITOR MASTER control is set approx. 2 o'clock position.
3. When the main pan is made even, confirm that the output level at the Monitor (R) Out terminal is −10 dBV ± 1.5 dB.

5-8. Cue Monitor Knob

1. Put the unit in the status (the MONITOR Master fader is set) as described in the Section 5-6 step 2 and set to turn off the LED of INSERT and MIX, then activate the REC function, set the level of cue monitor at maximum and the Cue Monitor Pan knob to the "L", and turn the Cue Monitor switch on; confirm that −10 dBV ± 1.5 dB is output at the Monitor Out terminal.
2. Next, place the Cue Monitor Pan knob at the "R" position and confirm that −10 dBV ± 1.5 dB is output at the Monitor Out terminal.
3. Place the Cue Monitor Pan knob at its center position and confirm that −12 dBV ± 1.5 dB is output at the Monitor Out terminal.
4. Deactivate the REC function then load and play back the test tape MXT-112. Make sure that the result is same as that specified in the Sections 1 and 2 above.

5−7. MONITOR MASTERつまみ

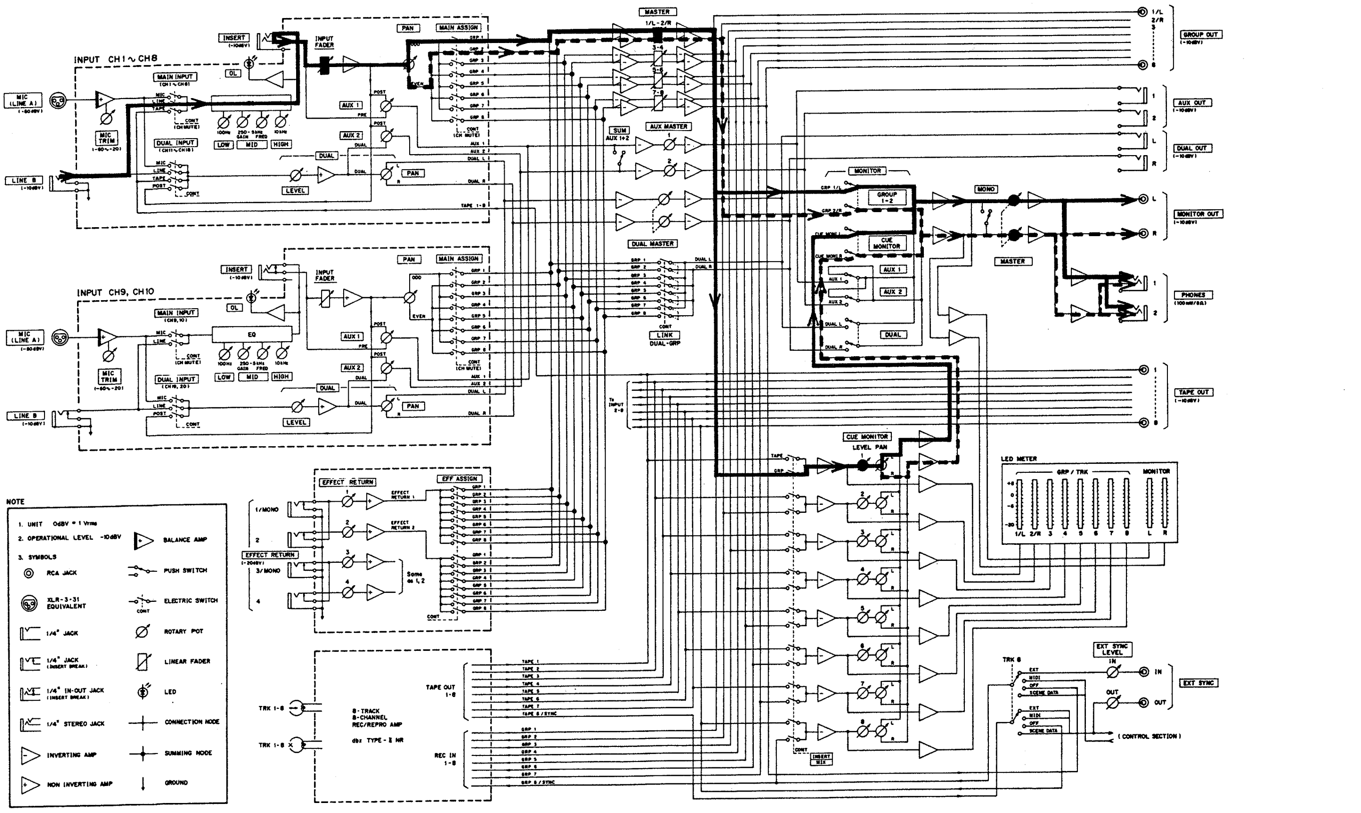
(LINE IN-->MONITOR OUT : 図5−6)

1．5−6項ステップ4(GRP MASTER フェーダーがセットされている状態) で，GRP 1-2 スイッチをオン，MONITOR MASTER つまみを最大にセットしたとき，MONITOR OUT の出力レベルが -2dBV±1.5dB であることを確認する．
2．次に MONITOR MASTER つまみを少しずつ絞っていき，出力が -10dBV になるようにセットする．このとき，MONITOR MASTERがおおよそ 2時の位置にあることを確認する．
3．MAIN PANをEVENにしたとき，MONITOR(R)OUT の出力レベルが-10dBV±1.5dB であることを確認する．

5−8. CUE MONITORつまみ

(図5−6)

1．5−7項ステップ2 (MONITOR MASTERつまみがセットされている状態) で, INSERT及びMIXの各LEDを消灯状態にしてREC FUNCTIONをオン, CUE MONITORのLEVELつまみを最大, CUE MONITOR PANつまみをL, CUE MONITOR スイッチをオンにしたとき, MONITOR OUTに−10dBV±1.5dBが出力されていることを確認する.
2．次にCUE MONITOR PAN つまみを Rにしたとき，MONITOR OUT に-10dBV±1.5dB が出力されていることを確認する．
3．CUE MONITOR PAN つまみをセンターにしたとき，MONITOR OUT に-12dBV±1.5dB が出力されることを確認する．
4．REC FUNCTIONをオフにして，テストテープMXT-112 を装着後プレイしたとき，上記1，2と同様のこと．



INPUT CH1～CH8
INPUT CH9, CH10
MIC (LINE A)
LINE B (-10dBV)
MIC TRIM
MAIN INPUT
DUAL INPUT
INSERT
INPUT FADER
PAN
MAIN ASSIGN
AUX 1
AUX 2
LEVEL
EQ
LOW
MID
HIGH
MASTER
SUM AUX 1+2
AUX MASTER
DUAL MASTER
LINK DUAL-GRP
MONITOR
GROUP 1-2
CUE MONITOR
MONO
GROUP OUT
AUX OUT
DUAL OUT
MONITOR OUT
PHONES
TAPE OUT
CUE MONITOR LEVEL PAN
LED METER
GRP / TRK
EFFECT RETURN
EFF ASSIGN
8-TRACK 8-CHANNEL REC/REPRO AMP
dbx TYPE-II NR
TAPE OUT 1-8
REC IN 1-8
TRK 1-8
EXT SYNC LEVEL
EXT SYNC
(CONTROL SECTION)
INSERT MIX
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL -10dBV
3. SYMBOLS
RCA JACK
XLR-3-31 EQUIVALENT
1/4" JACK
1/4" JACK (INSERT BREAK)
1/4" IN-OUT JACK (INSERT BREAK)
1/4" STEREO JACK
INVERTING AMP
NON INVERTING AMP
BALANCE AMP
PUSH SWITCH
ELECTRIC SWITCH
ROTARY POT
LINEAR FADER
LED
CONNECTION NODE
SUMMING NODE
GROUND

Fig. 5-6 / 図5−6

5-9. Headphones Monitor (LINE IN —> PHONES OUT: Figure 5-6)

Place the unit in the status (—10 dBV is output at the Monitor Out terminal) as described in the Step 2 of the Section 5-7 and make sure that approx. 100 mW (—1 dBV) is output with 8 ohm load at the Phones Out terminal.

5-10. EFFECT RETURN KNOB (EFF RTN —> GROUP OUT: Figure 5-7)

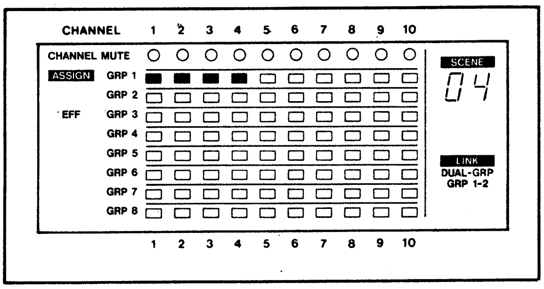
1. Put the unit in the state (the Group Master Fader is set) as described in the Section 5-6 and set the Effect Return-1 knob at the maximum position then set the Effect Return-1 and -2 knobs at the minimum position, and set up the assignments as shown in the illustration.
2. Input 1 kHz, —20 dBV signal to the Effect Return-1 Input terminal and confirm that more than —10 dBV is output at the Group-1 Out terminal.
3. Next, set the Effect Return-2 knob at the maximum position (with the Effect Return-1, —3 and —4 knobs at the minimum position), and confirm that more than —10 dBV is output at the Group-1 Out terminal.
4. Maintain the same status as the Step 3 above and input 1 kHz, —20 dBV signal to the Effect Return-1 Input terminal then confirm that more than —10 dBV is output at the Group-1 Out terminal.
5. From the status described in the Step 4 above, change the Effect Return-1 knob setting to the maximum position (the Effect Return-2, -3 and -4 knobs at the minimum position) and confirm that no signal is output at the Group-1 Out terminal.
6. Repeat the above procedures on the Effect Return-3 and -4.

5−9. ヘッドホン・モニター
(LINE IN--->PHONES OUT : 図5−6)

5−7項ステップ2(MONITOR OUTに -10dBV が出力されている状態) でPHONES OUTに, 8 Ω負荷で約100 mW(-1dBV) が出力されることを確認する.

5−10. EFFECT RETURNつまみ
(EFF RTN--->GROUP OUT : 図5−7)

1. 5−6項(GROUP MASTER フェーダーがセットされている状態) でEFFECT RETURN 1 つまみを最大, 2 ~4 つまみを最小にセットし, ASSIGNを図の様に設定する.
2. EFFECT RETURN 1 INPUT に 1KHz,-20dBVを入力したとき, GROUP 1 OUT に -10dBV 以上の出力があることを確認する.
3. 次に EFFECT RETUN 2 つまみを最大(1,3,4つまみを最小) にしたとき, GROUP 1 OUT に -10dBV 以上の出力があること.
4. 上記3の状態でEFFECT RETURN 2 INPUT に1kHz-20dBVを入力したとき, GROUP 1 OUT に -10dBV 以上の出力があることを確認する.
5. 上記4の状態から EFFECT RETUN 1 つまみを最大(2,3,4つまみを最小) にしたとき, GROUP 1 OUT には出力がないことを確認する.
6. 3, 4 INPUT についても上記と同様とする. (1,3モノ)


CHANNEL
1 2 3 4 5 6 7 8 9 10
CHANNEL MUTE
ASSIGN
EFF
GRP 1
GRP 2
GRP 3
GRP 4
GRP 5
GRP 6
GRP 7
GRP 8
SCENE
04
LINK
DUAL-GRP
GRP 1-2

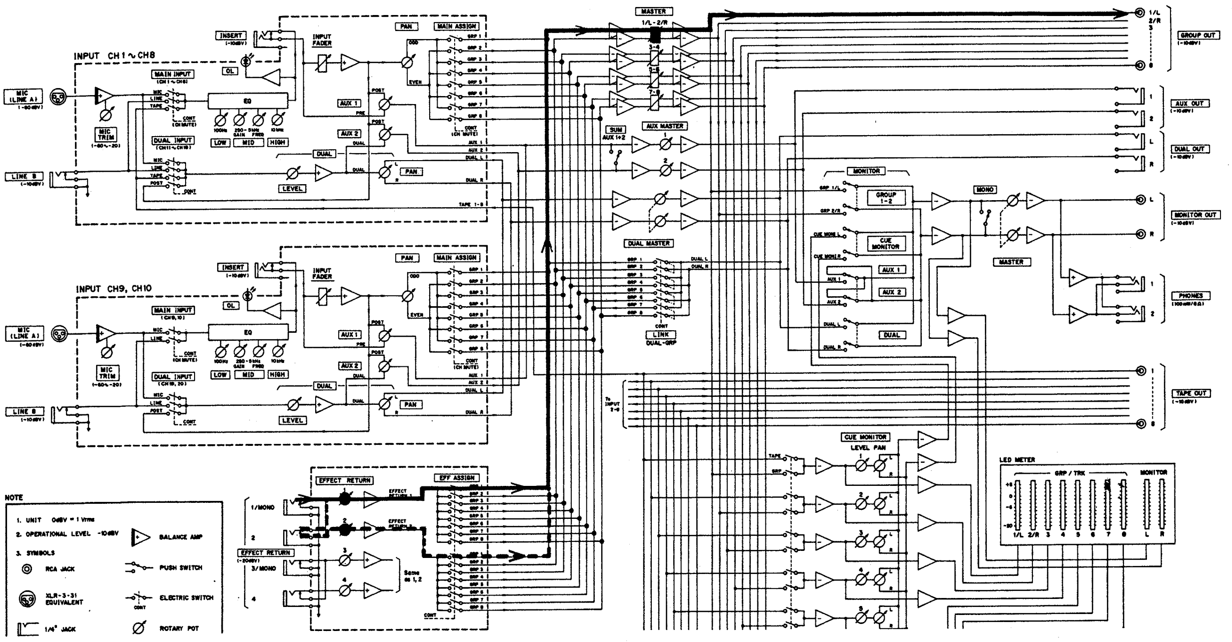

INPUT CH1~CH8
INPUT CH9, CH10
MIC (LINE A)
LINE B
MIC TRIM
MAIN INPUT
DUAL INPUT
INSERT
OL
EQ
LOW
MID
HIGH
INPUT FADER
PAN
MAIN ASSIGN
AUX 1
AUX 2
DUAL
LEVEL
MASTER
SUM
AUX MASTER
DUAL MASTER
LINK
DUAL-GRP
MONITOR
GROUP 1-2
CUE MONITOR
MONO
GROUP OUT
AUX OUT
DUAL OUT
MONITOR OUT
PHONES
TAPE OUT
CUE MONITOR
LEVEL PAN
LED METER
GRP / TRK
MONITOR
EFFECT RETURN
EFF ASSIGN
1/MONO
3/MONO
Same as 1, 2
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL -10dBV
3. SYMBOLS
RCA JACK
XLR-3-31 EQUIVALENT
1/4" JACK
BALANCE AMP
PUSH SWITCH
ELECTRIC SWITCH
ROTARY POT

Fig. 5-7 / 図5−7

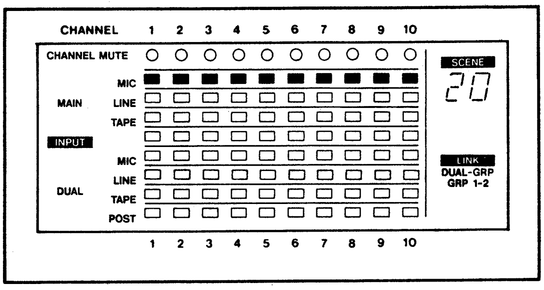
5-11. MIC TRIM (MIC INPUT JACK—>INSERT JACK: Figure 5-8)

1. Place the MIC TRIM controls at the minimum position and the EQ controls at their center position and then set the INPUT as shown in the illustration.
2. Confirm that when the 1 kHz −20 dBV signal is input to the MIC INPUT jack, −10 dBV ±2 dB will be output at the INSERT OUT.
3. Place the MIC TRIM controls at the maximum position and input −60 dBV to the MIC INPUT jacks (for the channels 7 and 8, input −70 dBV with a 1/4" jack, −55 dBV XLR connector) then confirm that −10 dBV ±2 dB will be output at the INSERT OUT jack.

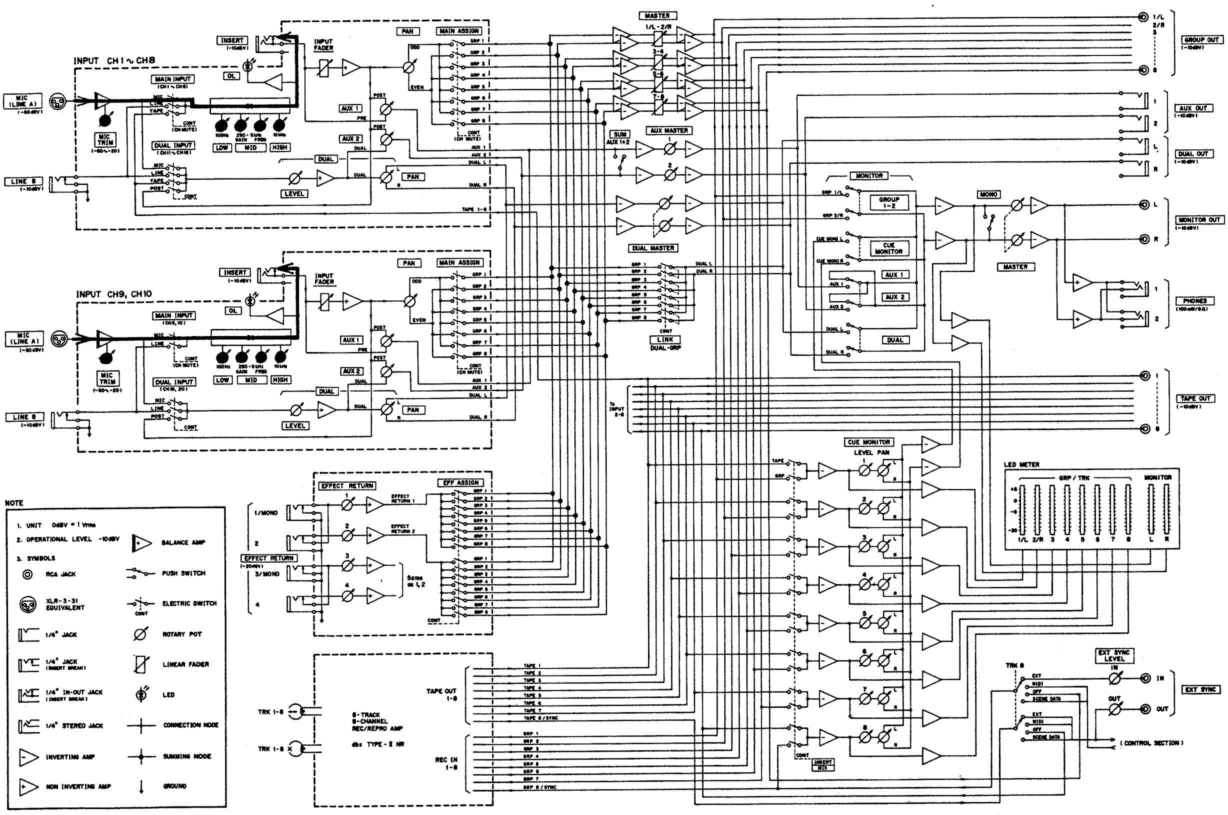
5−11. MIC TRIM

(MIC IN--->INSERT : 図5−8)

1. MIC TRIMを最少，EQつまみをセンターにセットし，INPUTを図の様に設定する.
2. MIC INに1KHz−20dBVを入力したとき，INSERT OUTに−10dBV±2dBが出力されることを確認する.
3. 次にMIC TRIMを最大にセットし，MIC INに-60dBVを入力したとき，INSERT OUTに-10dBV ±2dBが出力されることを確認する.



CHANNEL 1 2 3 4 5 6 7 8 9 10
CHANNEL MUTE
MAIN
MIC
LINE
TAPE
INPUT
DUAL
MIC
LINE
TAPE
POST
SCENE
20
LINK
DUAL-GRP
GRP 1-2
1 2 3 4 5 6 7 8 9 10



INPUT CH1～CH8
INPUT CH9, CH10
MIC (LINE A)
LINE B
INSERT
INPUT FADER
MAIN INPUT
DUAL INPUT
MIC TRIM
OL
LOW
MID
HIGH
PAN
MAIN ASSIGN
AUX 1
AUX 2
DUAL
LEVEL
MASTER
AUX MASTER
DUAL MASTER
LINK DUAL-GRP
MONITOR
GROUP 1-2
CUE MONITOR
MONO
PHONES
GROUP OUT
AUX OUT
DUAL OUT
MONITOR OUT
TAPE OUT
EFFECT RETURN
EFF ASSIGN
CUE MONITOR LEVEL PAN
LED METER
GRP / TRK
TRK 1-8
8-TRACK 8-CHANNEL REC/REPRO AMP
dbx TYPE-II NR
TAPE OUT 1-8
REC IN 1-8
EXT SYNC LEVEL
EXT SYNC
IN
OUT
CONTROL SECTION
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL -10dBV
3. SYMBOLS
RCA JACK
XLR-3-31 EQUIVALENT
1/4" JACK
1/4" JACK (INSERT BREAK)
1/4" IN-OUT JACK
1/4" STEREO JACK
INVERTING AMP
NON INVERTING AMP
BALANCE AMP
PUSH SWITCH
ELECTRIC SWITCH
ROTARY POT
LINEAR FADER
LED
CONNECTION NODE
SUMMING NODE
GROUND

Fig. 5-8 / 図5−8

5-12. LINK DUAL-GROUP SWITCH (LINE INPUT JACK —> GROUP OUT JACK: Figure 5-9)

1. Put the unit in the status specified in the Section 5-5 (the DUAL LEVEL and DUAL MASTER controls are being set) and set the GROUP MASTER Fader control per the Section 5-6. Set both of the ASSIGN MAIN switches to the OFF position, the LINK DUAL-GROUP 1-2 switch to the ON position , and the DUAL PAN controls to the "L" position, then confirm the unit will output −10 dBV ± 2 dB at the GROUP OUT-1 jack.
2. Next, place the DUAL PAN controls to the "R" position and confirm that −10 dBV ± 2 dB will be output at the GROUP OUT-2 jack.
3. Also confirm −10 dBV ± 2 dB will be output at the GROUP OUT-3, -4, -5, -6, -7 and -8 jacks.

5－12. LINK DUAL－GRPスイッチ

(LINE IN--->GROUP OUT : 図5－9)

1. ５－５項(DUAL LEVEL,DUAL MASTER がセットされている状態) で，GRP MASTERフェーダーがセットされているとき，MAIN ASSIGN をALL OFF,LINK DUAL-GRP 1-2 スイッチをON ,DUAL PAN をL側にセットし，GRP 1 OUT に -10dBV ±2dB が出力されることを確認する.
2. 次に DUAL PAN をR側にセットして，GRP 2 OUT に -10dBV ±2dB が出力されることを確認する.
3. 同様に GRP 3-4,5-6,7-8 OUTを確認する.

＊MAIN LINE はオフにしておくこと.

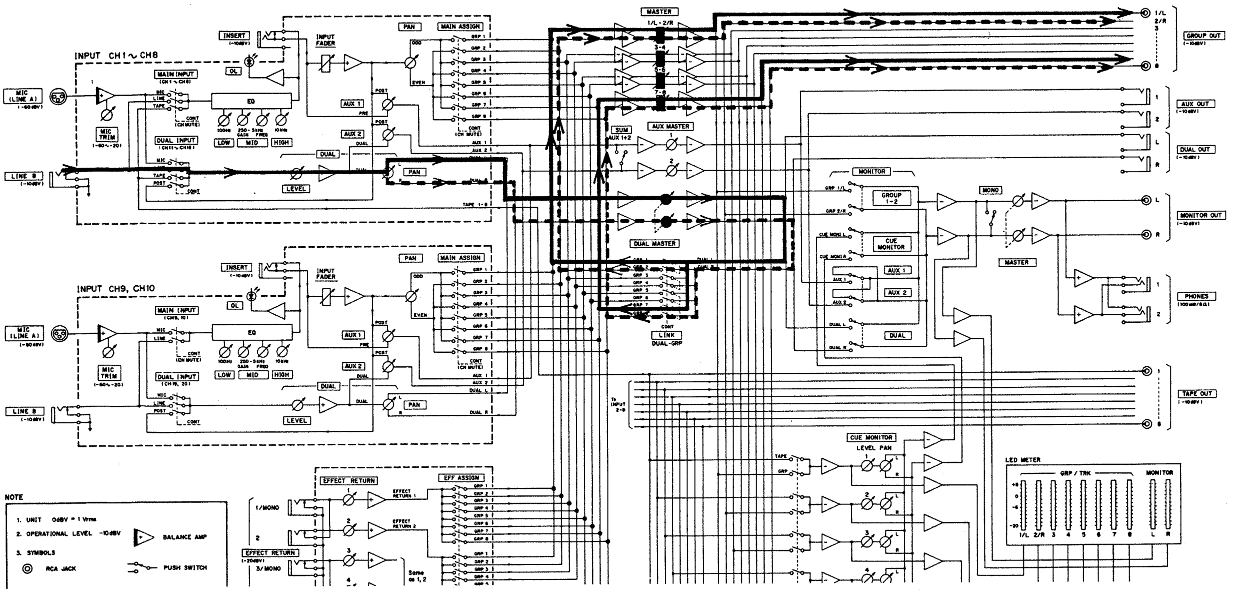

INPUT CH1～CH8
INPUT CH9, CH10
MIC (LINE A)
LINE B
MIC TRIM
MAIN INPUT
DUAL INPUT
INSERT
INPUT FADER
EQ
LOW
MID
HIGH
AUX 1
AUX 2
DUAL
LEVEL
PAN
MAIN ASSIGN
MASTER
AUX MASTER
SUM
DUAL MASTER
LINK DUAL-GRP
MONITOR
GROUP 1-2
CUE MONITOR
MONO
GROUP OUT
AUX OUT
DUAL OUT
MONITOR OUT
PHONES
TAPE OUT
EFFECT RETURN
EFF ASSIGN
LED METER
GRP / TRK
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL -10dBV
3. SYMBOLS
RCA JACK
BALANCE AMP
PUSH SWITCH

Fig. 5-9 / 図5－9

5-13. EQ (Hi.Lo) Controls (LINE IN —> GROUP OUT: Figure 5-5)

Maintain the status (the standard level signal is being output at the GROUP OUT terminals) as mentioned in the section 5-6 and verify that when the input signal frequency and each EQ control is set at their maximum positions and minimum positions, the output level at the GROUP OUT terminals changes as follows based on the frequency 1 kHz.

High (10 kHz): ± 12 ± 1.5 dB
Mid (250 Hz to 5 kHz): ± 14 ± 1.5 dB
Low (100 Hz): ± 12 ± 1.5 dB

5-14. Frequency Characteristics

When a standard signal is input to each input terminal, the output frequency characteristics should be:

20 Hz − 20 kHz +1 dB
−3 dB

5－13. EQ (Hi, Lo) つまみ

(LINE IN--->GROUP OUT : 図5－5)

５－６項(GROUP OUTに基準レベルが出力されている状態) で入力信号の周波数と各EQつまみを最大，最少にセットしたとき，GROUP OUT の出力レベルが周波数 1KHz を基準にして次の通り変化することを確認する.

HIGH(10KHz)	:	±12±1.5dB
MID(250 ～5KHz)	:	±14±1.5dB
LOW(100Hz)	:	±12±1.5dB

5－14. 周波数特性

基準入力，出力レベルに於いて，いずれのINPUT からOUTPUTの周波数特性は下記の通りです.

20Hz～20KHz +1dB
-3dB

5-15. Meter Check

1. When the output level of GROUP 1 OUT is −10 dBV after confirming section 5-7 (MONITOR MASTER SET) and turning the REC FUNCTION 1 switch to the ON position, the channel 1 meter should indicate 0 dB.
2. In the same manner, check the REC Function-2 thorough -8.
3. Maintain the output level of GROUP 1 OUT is −10 dBV and turn the Group switch on then confirm that the monitor meter reading is 0 dB.
4. Play back the test tape (MXT-112) by putting the unit in the status described in the step 1 above, and turn the REC FUNCTION switch off then confirm that the meter indicates 0 dB.

5−15. メータ・チェック（図5−10）

1. 5−7項終了後（MONITOR MASTERをセット）GROUP 1 OUTに−10dBVが出力されている時，REC FUNCTION 1スイッチをオンにして1チャンネルメーターが0dBを示すこと．
2. 同様にREC FUNCTION 2~8をセットしメーター指示を確認する．
3. 次に，GROUP 1 OUTに−10dBVが出力されている状態からGROUP 1−2スイッチをオンにして，モニターメーターの指示が0dBであることを確認する．
4. 1の状態からREC FUNCTIONスイッチをオフにし，テストテープ（MXT-112）を再生したとき，メーター指示が0dBのことを確認する．

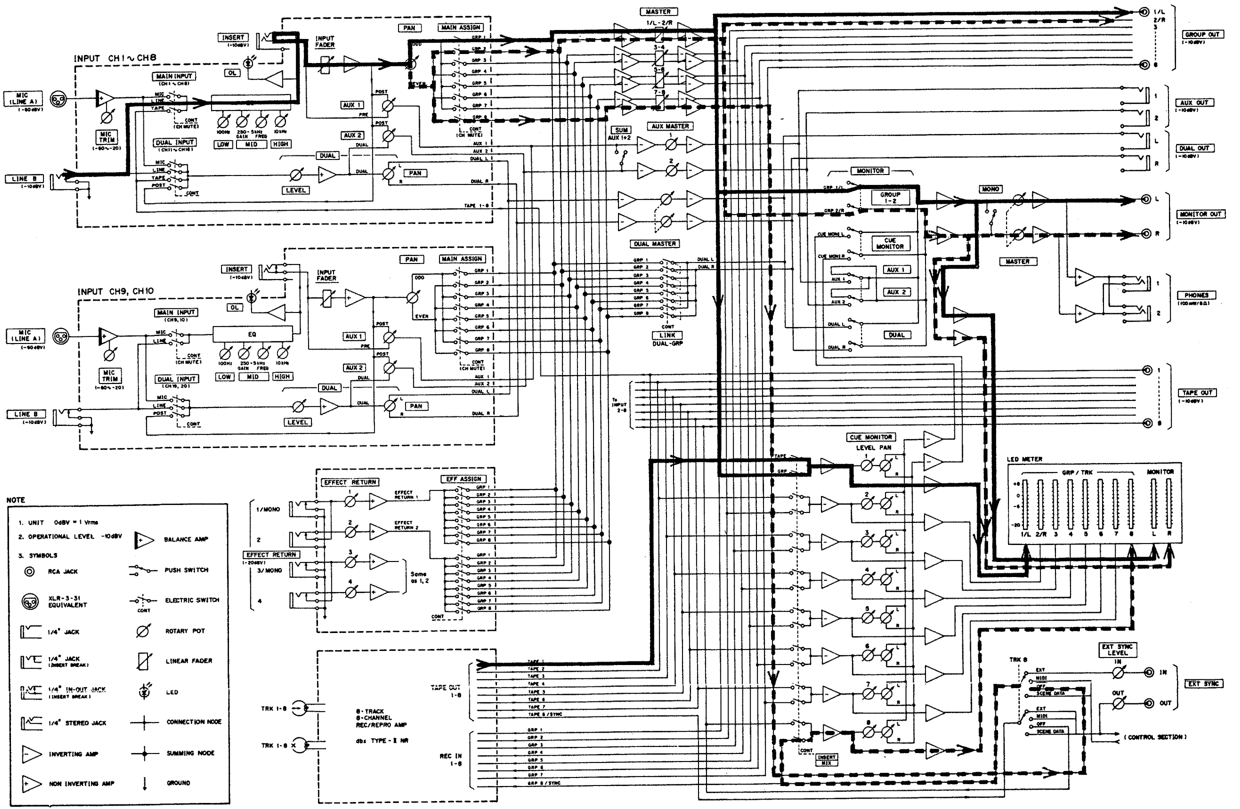

INPUT CH1～CH8
INPUT CH9, CH10
MIC (LINE A) (−60dBV)
LINE B (−10dBV)
MIC TRIM (−60～−20)
INSERT (−10dBV)
MAIN INPUT
DUAL INPUT
OL
EQ
LOW MID HIGH
INPUT FADER
PAN
MAIN ASSIGN
AUX 1
AUX 2
DUAL
LEVEL
CONT
MASTER
GROUP OUT (−10dBV)
AUX OUT (−10dBV)
DUAL OUT (−10dBV)
SUM AUX 1+2
AUX MASTER
DUAL MASTER
LINK DUAL-GRP
MONITOR
GROUP 1-2
MONO
CUE MONITOR
MONITOR OUT (−10dBV)
PHONES
TAPE OUT (−10dBV)
CUE MONITOR LEVEL PAN
LED METER
GRP / TRK
EFFECT RETURN
EFF ASSIGN
EFFECT RETURN (−20dBV)
8-TRACK 8-CHANNEL REC/REPRO AMP
dbx TYPE-II NR
TAPE OUT 1-8
REC IN 1-8
TRK 1-8
EXT SYNC LEVEL
EXT SYNC
(CONTROL SECTION)
INSERT MIX
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL −10dBV
3. SYMBOLS
RCA JACK
XLR-3-31 EQUIVALENT
1/4" JACK
1/4" JACK (INSERT BREAK)
1/4" IN-OUT JACK (INSERT BREAK)
1/4" STEREO JACK
INVERTING AMP
NON INVERTING AMP
BALANCE AMP
PUSH SWITCH
ELECTRIC SWITCH
ROTARY POT
LINEAR FADER
LED
CONNECTION NODE
SUMMING NODE
GROUND

Fig. 5-10 / 図5−10

5-16. Distortion Rate

Measure the distortion rate after setting the input/output controls for each channel at the standard positions and the 1 kHz input signal is set at the specified level.

Connect a 30 kHz low-pass filter between the output terminal and the distortion rate meter.

The specifications are as follows:

MIC IN to GROUP OUT: less than 0.04%
LINE IN to GROUP OUT: less than 0.035%

5-17. Signal-to-Noise Ratio

Take measurements after setting the input/output controls for each channel at the specified positions. The specifications are shown below.

DIN AUDIO (20 Hz − 20 kHz)
1 MIC IN to GROUP OUT: less than 71 dB
8 MIC INS to GROUP OUT: less than 69 dB
1 LINE IN to GROUP OUT: less than 74 dB
8 LINE INS to GROUP OUT: less than 72 dB

5−16. 歪率

各系統の入出力つまみが基準位置にセットされ，入力信号が1KHzで規定レベルにセットされた状態で測定します．
出力側には歪率計との間に30KHzのロー・パス・フィルターを接続します．規格は次の通りです．

MIC IN --->GROUP OUT : 0.03% 以下
LINE IN--->GROUP OUT : 0.03%以下

5−17. SN比

各系統入出力つまみが規定位置にセットされた状態で測定します．規格は次の通りです．

DIN AUDIO(20Hz −20kHz)
1 MIC IN --->GROUP OUT : 71dB以下
10MIC INs --->GROUP OUT : 69dB以下
1 LINE IN --->GROUP OUT : 74dB以下
10LINE INs--->GROUP OUT : 72dB以下

6. CHECKS AND ADJUSTMENTS ON RECORDING/PLAYBACK AMP

録音・再生アンプ部のチェックと調整

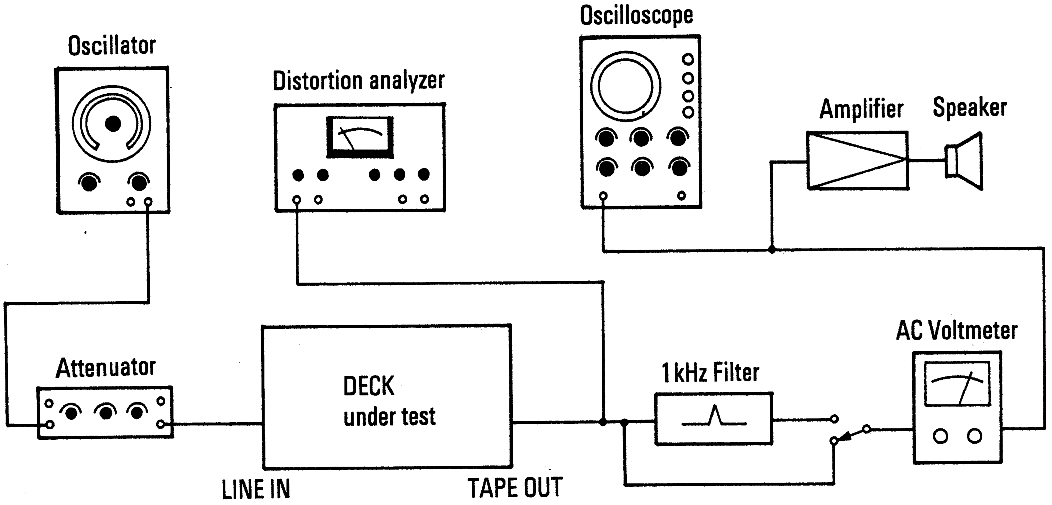

Oscillator
Distortion analyzer
Oscilloscope
Amplifier
Speaker
Attenuator
DECK
under test
1kHz Filter
AC Voltmeter
LINE IN
TAPE OUT

Fig. 6-1 Basic test setup
図6−1 基本測定接続図

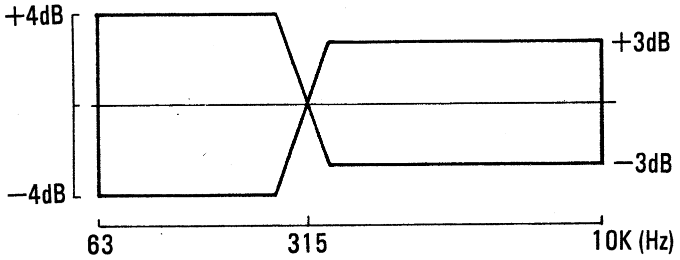


Fig. 6-2 Playback frequency response
図6−2 再生周波数特性

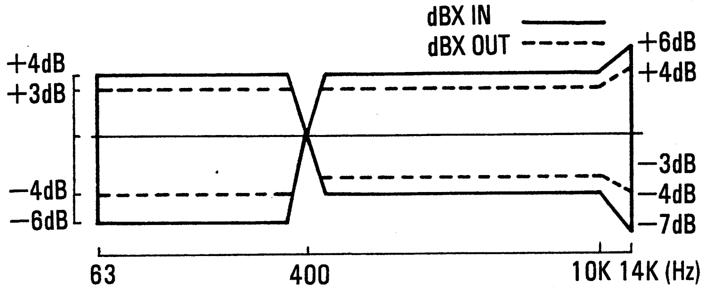
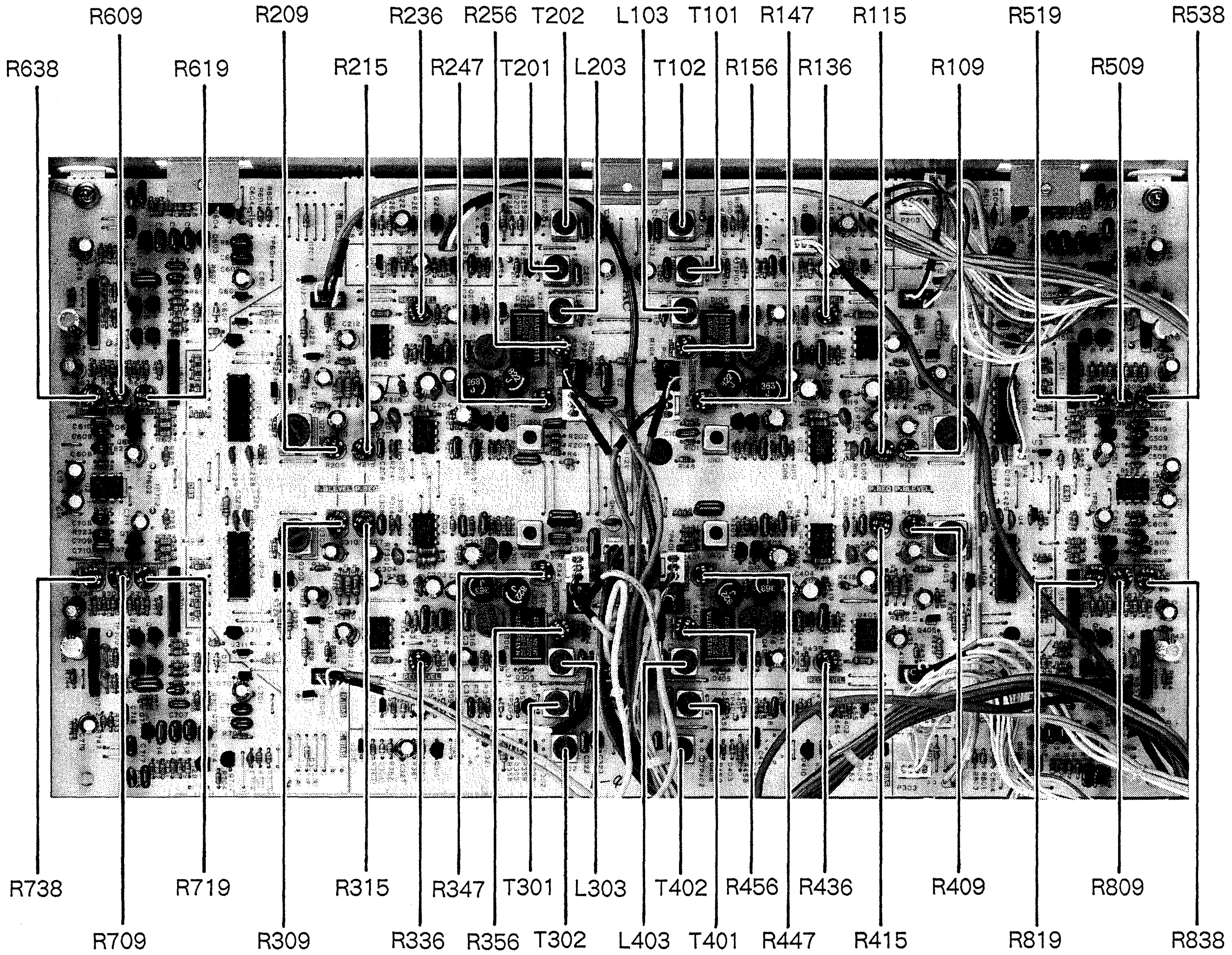


Fig. 6-3 Overall frequency response
図6−3 録再周波数特性

6-1. ADJUSTMENT LOCATIONS

6－1. 調整個所

<R/P PCB>

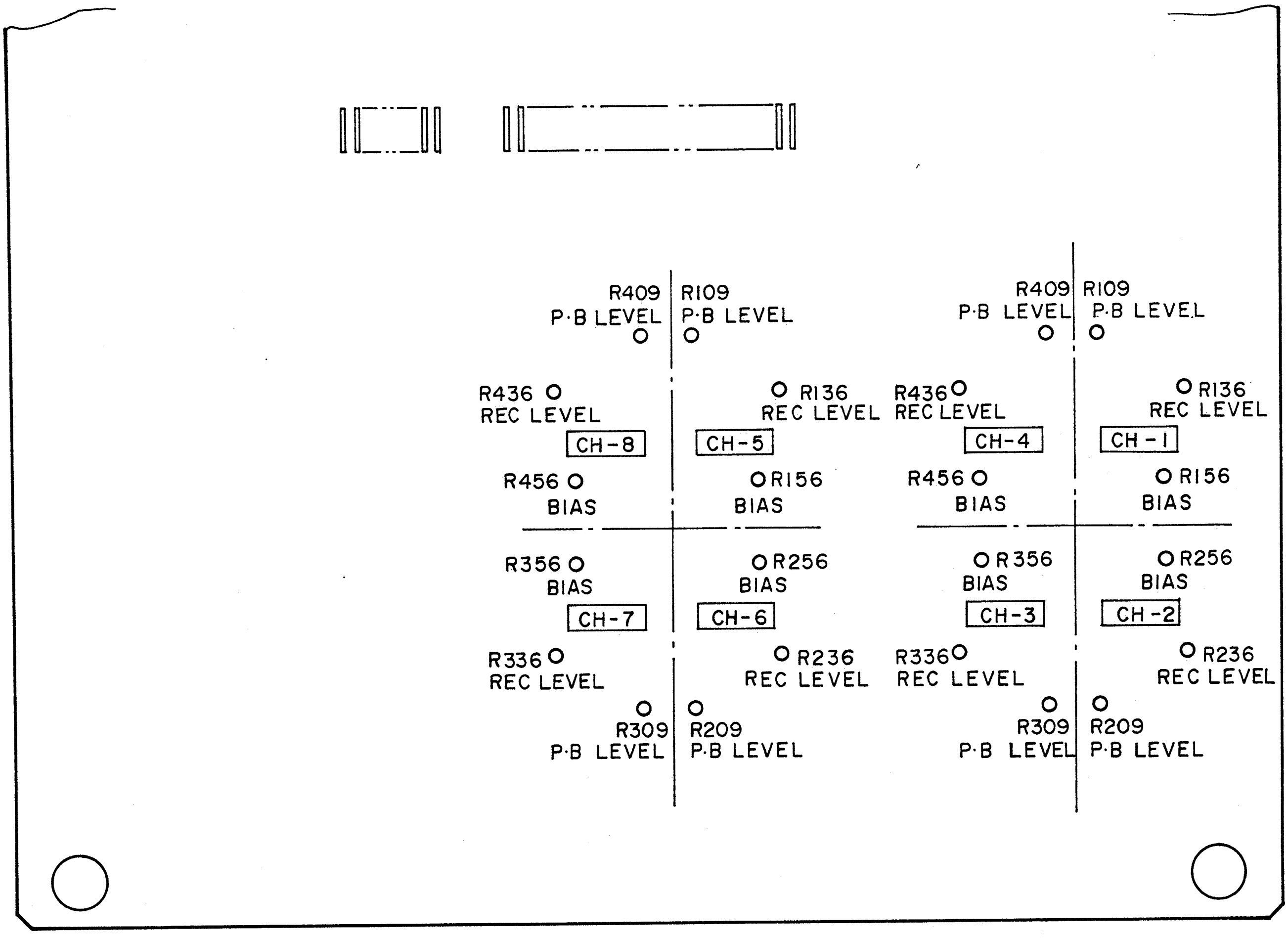

R609
R209
R236
R256
T202
L103
T101
R147
R115
R519
R538
R638
R619
R215
R247
T201
L203
T102
R156
R136
R109
R509
R738
R719
R315
R347
T301
L303
T402
R456
R436
R409
R809
R709
R309
R336
R356
T302
L403
T401
R447
R415
R819
R838

R109〜R409	Specified output level	規定出力レベル
R103〜R803	Meter level	メータ・レベル
R13 , R23	Moni. meter level	モニタメータ・レベル
R115〜R415	Playback frequency level	再生周波数特性
T 1	Bias osc.frequency	バイアス発振周波数
T101〜T401	Bias amp (Record)	バイアス・アンプ（録音）
T102〜T402	Bias amp (Erase 1)	バイアス・アンプ（消去１）
L103〜L403	Bias amp (Erase 2)	バイアス・アンプ（消去２）
R156〜R456	Record bias	録音バイアス
R136〜R436	Record level	録音レベル
R147〜R447	Sync cross-talk	シンククロストーク
R519〜R819	VCA SYM	
R508〜R809	LEVEL	
R538〜R838	RMS SYM	

Fig. 6-4 Adjustment and test point locations

図6－4 調整とテストポイント箇所

<BOTTOM PANEL>


R409
P·B LEVEL
R109
P·B LEVEL
R436
REC LEVEL
CH-8
R136
REC LEVEL
CH-5
R456
BIAS
R156
BIAS
R356
BIAS
CH-7
R256
BIAS
CH-6
R336
REC LEVEL
R236
REC LEVEL
R309
P·B LEVEL
R209
P·B LEVEL
R409
P·B LEVEL
R109
P·B LEVEL
R436
REC LEVEL
CH-4
R136
REC LEVEL
CH-1
R456
BIAS
R156
BIAS
R356
BIAS
CH-3
R256
BIAS
CH-2
R336
REC LEVEL
R236
REC LEVEL
R309
P·B LEVEL
R209
P·B LEVEL

FRONT

Fig. 6-5
図6−5

<METER PCB>

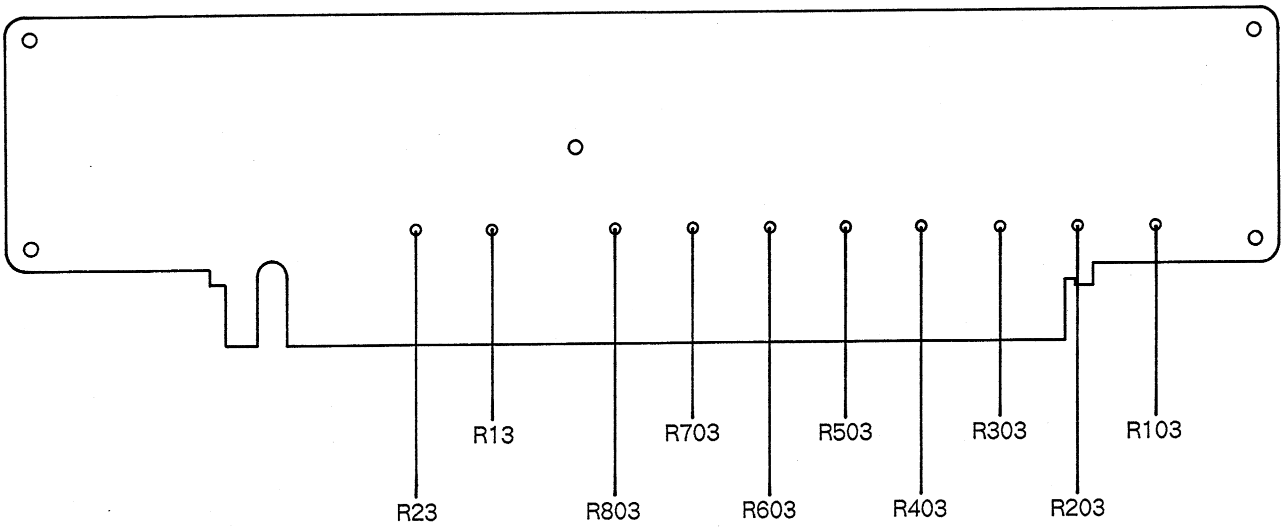

R13
R703
R503
R303
R103
R23
R803
R603
R403
R203

Fig. 6-6
図6−6

6-2. Caution

1. Before beginning adjustments of the amplifier section, be sure to thoroughly demagnetize the erase heads, record/playback heads and tape handling parts, and also clean them with a recorder cleaner.
2. Use a level meter with input impedance of 1 megohms or higher.
3. 0dBV is referred to 1V.
4. Reference input = —10dBV (GRP output level when the mixer section is connected.)
   Reference output = —10dBV
5. Unless otherwise specified 1 through 4 and 5 through 8 channels are the same. For adjustment numbers of the semi-fixed trimming resistors, refer to R/P amplifier. The numbers of 100 order refers to channels 1 and 5, 200 order refers to channels 2 and 6, 300 to channels 3 and 7, and 400 to channels 4 and 8.)
6. As a blank test tape, use TEAC MTT-5661 or equivalent.

6-3 Reproduction Section

Mode: PLAY
Measurement location: TAPE OUT terminal

Adjustment	Preparation/Setting	Input Signal	Adjust	Measurement (Place/ Value)	Remarks
1. Playback Reference Level	Connection: Fig. 6-1	MXT-112 (315Hz/Reference level group)	R/P PCB R109 ~ R409	Each channel: —10dB	
2. Meter Level	Same as above	Same as above	METER PCB R103 ~ R803 R13, R23 (MONI METER)	Each channel : Meter indication 0dB	Fig. 6-6
3. Playback Frequency Characteristics	Same as above	MXT-1171(T)	R115 ~ R415 R/P PCB	Each ch: Specification Fig. 6-2 Adjust until 10kHz level shows 0dB (same as 315Hz level).	
4. Level Difference between channels	Same as above	Same as above	Check	Each ch: 40 ~ 6.3kHz: within 3dB	
5. Level Fluctuation	Same as above	Same as above	Check	Each ch: 63 ~ 6.3kHz: Within 2dB 6.3k ~ 12.5kHz: Within 3dB	
6. Playback S/N Ratio	Same as above	—	Check	Value obtained when leader tape section is reproduced in the reference output condition: Each ch: Higher than 47dB (Except chs 1 and 8 which should be higher than 45dB.)	

6-4. Record Section

Mode: REC/PLAY (unless otherwise specified)
Input Signal: LINE B terminal
Measurement location: TAPE OUT terminals (unless otherwise specified)

Adjustment	Preparation/Setting	Input Signal	Adjust	Measurement (Place/ Value)	Remarks
1. Bias OSC Frequency	Connection: Connect frequency counter to "TP" and GND near PS PCB BIAS OSC. REC FUNCTION SW: ON Mode: REC/PLAY	—	PS PCB OSC UNIT	Adjust until counter shows 85kHz at erase head terminals.	
2. Bias Amplifier (REC)	Connection: R/P AMP —12V - TP101 ~ TP401 REC FUNCTION SW: ON Mode: REC/PLAY	—	R/P PCB T101 ~ T401	Adjust until DC voltmeter shows minimum value.	
3. Bias Amplifier (Erase 1)	Connection: R/P AMP —12V - TP102 ~ TP402 REC FUNCTION SW: ON Mode: REC/PLAY	—	R/P PCB T102 ~ T402	Same as above	
4. Bias Amplifier (Erase 2)	Same as above	—	R/P PCB L103 ~ L403	Same as above	
5. Bias setting	Connection: Fig. 6-1 dbxNR: IN	—30dB (—20dB from reference level)	R156 ~ R456	Adjust 10kHz level shows the same level as 400Hz level.	
6. Record Reference Level	Connection: Fig. 6-1 dbxNR: OUT	400Hz/—10dB (Reference input)	R136 ~ R436	—9.5dB output should be developed when recorded and played back.	
7. Recording Level Check	Connection: Fig. 6-1 dbxNR: IN	Same as above	Check	—10dB ± 1.5 dB output should be developed when recorded and played back. Meter indication should be within ± 1 dot.	
8. Record/ Playback distortion	Same as item 6	—	Check	Each ch: Less than 2%	
9. Record/ Playback Frequency	Connection: Fig. 6-1 REC FUNCTION SW: ON dbxNR: IN, OUT	63 ~ 14kHz/—30dB (—20dB from reference input)	Check	Each ch: Specifications Fig. 6-3	
10. Level Difference Between Channels	Same as above dbxNR: OUT	Same as above	Same as above	Level difference between channels within record/playback frequency characteristic specifications. 63 ~ 6.3kHz: Within 3dB 6.3k — 10kHz: Within 4dB (Except channels 1 and 8.)	

Adjustment	Preparation/Setting	Input Signal	Adjust	Measurement (Place/ Value)	Remarks
11. Record/ Playback Level Fluctuation	Same as above	Same as above	Same as above	Level fluctuations between channels within record/playback frequency characteristic specifications. 400Hz: Within 1dB (Within 2dB for channels 1 and 8) 63 ~ 6.3kHz: Within 2dB (Within 3dB for channels 1 and 8) 6.3k ~ 14kHz: Within 3dB (Within 4dB for channels 1 and 8)	
12. Crosstalk	Connection: Fig. 6-1 REC FUNCTION SW: ON (adjustment channel only) Other channel: OFF	10kHz/−10dB	R147 ~ R447	Adjust for minimum leakage from recording channel to adjacent playback channels. (less than 0dB)	
13. Crosstalk between tracks	Connection: Fig. 6-1 REC FUNCTION SW: ON	1ch ~ 4ch: 125Hz/ −10dB 5ch ~ 8ch: No signal	Check	Playback output difference between 1ch ~ 4ch, and 5ch ~ 8ch: More than 30dB In the same way check for chs 1 ~ 4: No signal chs 5 ~ 8: 125Hz/−10dB	
14. Channel Separation	Connection: (Use 1kHz BPF.) REC FUNCTION SW: All chs on.	chs 1, 3: 1kHz/−10dB Other channels: No signal	Check	Playback output difference between channels 1,3 and 2, 4.: Higher than 35dB. In the same way check for: chs 2,4 --> chs 1,3 chs 5,7 --> chs 6,8 chs 6,8 --> chs 5,7	
15. Cross erase	Connection: Fig. 6-1	chs 1 ~ 4: 10kHz/ −10dB chs 5 ~ 8: No signal chs 1 ~ 4: No signal chs 5 ~ 8: 10kHz/ −10dB	Check	Record in chs 1 ~ 4, play back and check the levels. Erase chs 5 ~ 8 and play back chs 1 ~ 4 and check the level reduction: It should be within 1.5dB. Same for reverse operation.	
16. Erase Ratio	Connection: Fig. 6-1 (Use 1kHz BPF.)	1kHz/0dB (+10dB from reference level)	Check	Play back a recorded signal and note the level as a reference level. Erase the recorded signal and then playback the erased part and note the output level. Level difference between the two output levels should be higher than 65dB.	
17. Record/ Playback S/N Ratio	Connection: Fig. 6-1 dbxNR: ON	No signal	Check	Level ratio between reference output level and no signal record playback output: Higher than 45dB (Higher than 43dB for channels 1 and 8) Channel difference: Within 4dB	

6−2. 注意

1. アンプ部の調整の前に，消去ヘッド，録／再ヘッド，テープ走行部分それぞれを充分消磁し，クリーナ液で清掃して下さい。
2. レベル計は入力インピーダンス1MΩ以上のものを使用して下さい。
3. 0dBV＝1V
4. 規定入力＝−10dBV（ミキサー部が接続された状態では，GRP OUTのレベル）
   規定出力＝−10dBV
5. 注記のない限り1ch〜4ch, 5ch〜8ch同様とする。また半固定ボリューム調整についての部番はR／Pアンプとする。
   (部番の100番台は1,5ch, 200番台は2,6ch, 300番台は3,7ch, 400番台は4,8ch)
6. ブランク・テープはTEAC MTT-5561又は，相当品を使用して下さい。

6−3. 再生系

モード：PLAY
測定個所：TAPE OUT端子

調整項目	準備・設定	入力信号	調整個所	測定個所・調整値	備考
1. 再生基準レベル	接続：図6−1参照	MXT-112 (315Hz／基準レベル区分)	R109〜R409 R／P PCB	各ch：−10dB	
2. メータ・レベル	同上	同上	METER PCB R103〜R803 R13, R23 (MONI METER)	各ch：メータ指示0dB	図6−6
3. 再生周波数特性	同上	MXT-1171 (T)	R115〜R415 R／P PCB	各ch：規格 図6−2 10kHzのレベルが0dB（315Hzと同レベル）になるように調整	
4. チャンネル間レベル差	同上	同上	チェック	各ch：40〜6.3kHz：3dB以内	
5. レベル変動	同上	同上	チェック	各ch：63〜6.3kHz：2dB以内 6.3k〜12.5kHz：3dB以内	
6. 再生S／N	同上	—	チェック	基準出力状態でリーダ・テープ部を再生したときの値 各ch：47dB以上 （但し，1,8chは45dB以上）	

6−4. 録音系

モード：REC／PLAY（特に指示のある場合を除く）
信号入力：LINE B端子
測定個所：TAPE OUT端子（特に指示のある場合を除く）

調整項目	準備・設定	入力信号	調整箇所	測定箇所・調整値	備考
1. バイアス発振周波数	接続：PS PCBのBIASOSC付近の“TP”−GND間に周波数カウンタを接続 REC FUNCTIION SW ：ON モード：REC／PLAY	—	PS PCB OSC UNIT	消去ヘッド端子で周波数が85kHzになるように調整	

調整項目	準備・設定	入力信号	調整個所	測定個所・調整値	備考
2. バイアスアンプ （録音）	接続：R/P AMP －12V－TP101～TP401 REC FUNCTION SW ：ON モード：REC/PLAY	—	R/P PCB T101～T401	直流電圧計が最小になるように調整	
3. バイアスアンプ （消去1）	接続：R/P AMP －12V－TP102～TP402 REC FUNCTION SW ：ON モード：REC/PLAY	—	R/P PCB T102～T402	同上	
4. バイアスアンプ （消去2）	同上	—	R/P PCB L103～L403	同上	
5. バイアスセット	接続：図 6-1 dbxNR：IN	－30dB （基準入力に対して－20dB）	R156～R456	400Hzと10kHzが同レベルになるように調整	
6. 録音基準レベル	接続：図 6-1 dbxNR：OUT	400Hz/－10dB （基準入力）	R136～R436	録音・再生したとき，－9.5dBになるように調整	
7. 録音レベルチェック	接続：図 6-1 dbxNR：IN	同上	チェック	録音・再生したとき，－10dB±1.5dBの出力があること 本体のメーターは±1ドットのこと。	
8. 録再歪率	6項と同じ	←	チェック	各ch：2％以下	
9. 録再周波数特性	接続：図6-1 REC FUNCTION SW ：ON dbxNR：IN, OUT	63～14kHz/－30dB （基準入力に対して－20dB）	チェック	各ch：規格Fig 6-3	
10. チャンネル間レベル差	同上 dbxNR：OUT	同上	同上	録再周波数特性規格内に於けるch間レベル差 63～6.3kHz：3dB以内 6.3k～10kHz：4dB以内 （但し，1ch，8chは除く）	
11. 録再レベル変動	同上	同上	同上	録再周波数特性規格内に於けるch間レベル変動 400Hz：1dB以内（1ch，8chは2dB以内） 63～6.3kHz：2dB以内 （1ch，8chは3dB以内） 6.3k～14kHz：3dB以内 （1ch，8chは4dB以内）	
12. シンククロストーク	接続：図6-1 REC FUNCTION SW ：調整chのみON, 他ch：OFF	10kHz/－10dB	R147～R447	録音chから隣接再生chへの漏れが最小になるように調整（0dB以下のこと）	
13. トラック間 クロストーク	接続：図6-1 REC FUNCTION SW ：ON	1ch～4ch：125Hz/－10dB 5ch～8ch：無信号	チェック	1ch～4chと5ch～8chの再生出力の差：30dB以上 以下 1～4ch：無信号，5～8ch：125Hz/－10dBの場合も同様に測定する。	
14. チャンネル セパレーション	接続：（1kHz B.P.F.使用） REC FUNCTION SW ：全ch ON	1,3ch：1kHz/－10dB 他ch：無信号	チェック	1,3chの再生出力と2,4chの再生出力の差 ：35dB以上 以下 2,4ch→1,3ch 5,7ch→6,8ch 6,8ch→5,7chも同様に測定する。	
15. クロス消去	接続：図6-1	1～4ch：10kHz/－10dB 5～8ch：無信号 1～4ch：無信号 5～8ch：10kHz/－10dB	チェック	1～4chを録音→再生してレベルを確認後，5～8chを消去したとき，1～4chの再生レベルの低下：1.5dB以内。 逆も同様	
16. 消去率	接続：図6-1 （1kHz B.P.F使用）	1kHz/0dB （基準レベルに対し＋10dB）	チェック	録音部分を再生した時のレベルを基準レベルとし，録音部分を消去しそれを再生した時の出力レベルとの差：65dB以上	
17. 録再S/N	接続：図6-1 dbxNR：OUT	無信号	チェック	基準出力レベルと無信号録再出力レベルとの比：45dB以上（但し1,8chは43dB以上） チャンネル差：4dB以内	

6-5. DBX PCB Unit Adjustment

Before Proceeding to Check and Adjustment

1. The DBX circuit does not need readjustment unless the R/P PCB ASSY is replaced.
   Caution: When removing or mounting the PC boards, always turn the power off.

6－5. DBX基板単体調整

チェック及び調整を始める前に

1. R／P PCB ASSYを交換した場合以外はDBXの調整はする必要がありません。
   注意. 基板の取り外し，取付けは必ず電源を切ってから行って下さい。

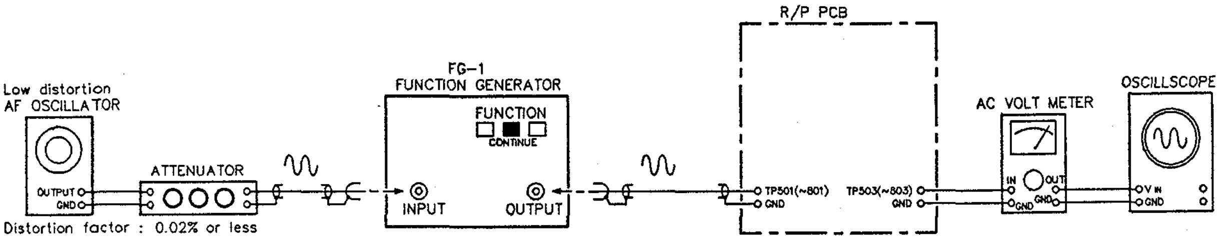

Low distortion
AF OSCILLATOR
OUTPUT
GND
ATTENUATOR
Distortion factor : 0.02% or less
Output level : 3V or more
FG-1
FUNCTION GENERATOR
FUNCTION
CONTINUE
INPUT
OUTPUT
R/P PCB
TP501(~801)
GND
TP503(~803)
GND
AC VOLT METER
IN
OUT
GND
OSCILLSCOPE
V IN
GND

Fig. 6-7 RMS SYMMETRY, Level Adjustment
図6－7 RMS SYM調整

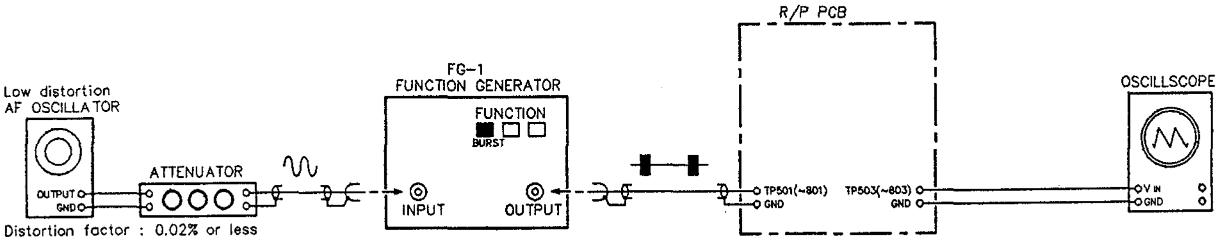

Low distortion
AF OSCILLATOR
OUTPUT
GND
ATTENUATOR
Distortion factor : 0.02% or less
Output level : 3V or more
FG-1
FUNCTION GENERATOR
FUNCTION
BURST
INPUT
OUTPUT
R/P PCB
TP501(~801)
GND
TP503(~803)
GND
OSCILLSCOPE
V IN
GND

Fig. 6-8 RELEASE RATE, Level/Adjustment
図6－8 リリースレート調整

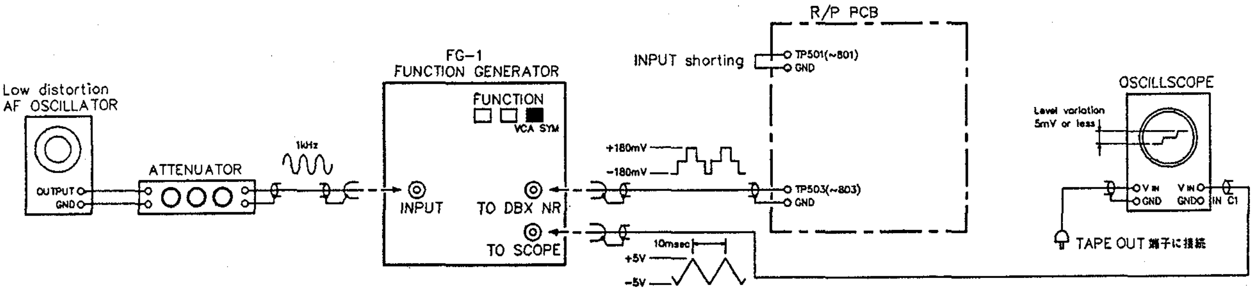
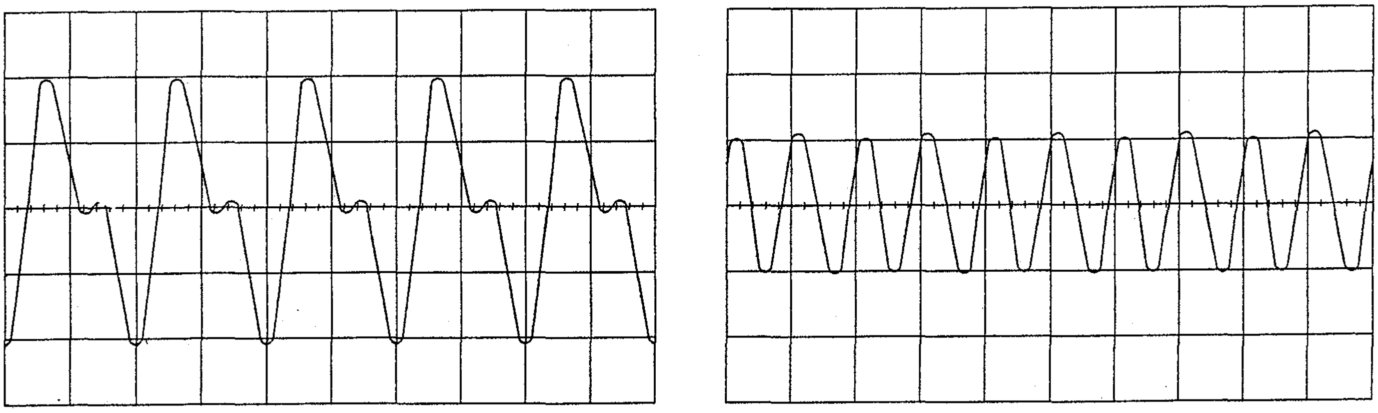

Low distortion
AF OSCILLATOR
OUTPUT
GND
ATTENUATOR
1kHz
FG-1
FUNCTION GENERATOR
FUNCTION
VCA SYM
INPUT
TO DBX NR
TO SCOPE
INPUT shorting
R/P PCB
TP501(~801)
GND
+180mV
-180mV
TP503(~803)
GND
10msec
+5V
-5V
OSCILLSCOPE
Level variation
5mV or less
V IN
GND
V IN
GND
IN C1
TAPE OUT 端子に接続

Fig. 6-9 VCA SYMMETRY, Level/Adjustment
図6－9 VCA SYM調整



Misaligned

Properly Aligned

Fig. 6-10 RMS SYMMETRY
図6－10 RMS SYM

6-6. Decoder Section

dBX switch on rear panel: IN
To set the unit to decoder mode, set the unit to play or shuttle mode status.

Adjustment	Preparation/Setting	Input Signal	Adjust	Measurement (Place/ Value)	Remarks
1. RMS SYM adjustment	Connection: Fig. 6-7	TP501 (~TP801): 100Hz/−10dBV (0.3V)	R538 (~R838)	TP503 (~TP803): Adjust until scope display shows 200Hz sinewave.	AC voltmeter connection: Fig. 6-10 TP503 (~TP803)-GND
2. VCA SYS adjustment	Connection: Fig. 6-9 Short-circuit TP501 (~TP801) and GND on R/P PCB. (5mm GND J.W is located near TP502 ~ 802.)	Feed signal shown in Fig. 6-9 to TP503 (~TP803) and H terminal of oscilloscope.	R519 (~R819)	Oscilloscope: Adjust until monitored waveform shows a straight line (less than 5mV).	Fig. 6-9
3. Level adjustment	Connection: Fig. 6-7	TP501 (~TP801): 1kHz/−10dBV Note: If problems occur on input level, etc., set R109 (~R409) to the center and set the unti to shuttle mode by short-circuiting both ends of R123 (~R423). Or connect a 100 ohms resistor between pin 12 of U104 (~U404) and −12V, and open pins 10 and 11, and then feed above signal with a level which develops −10dBV. Fig. 6-7	R509 (~R809)	AC voltmeter: −10dBV (0.3V)	
4. Frequency check	Same as above	TP501 (~TP401) 100 Hz/−10 dBV	Check	TAPE OUT: To be lowered by 0.72 dB ± 1 from 1kHz level.	
		10 kHz/−10 dBV	Check	To be increased by 6.5 dB ± 1 from 1 kHz level.	
5. Release rate check	Connection: Fig. 6-8 MODE: Playback	TP501 (~TP801): 1 kHz/−10dBV (8 waves on, 128 waves off) Fig. 6-8 Refer to the item 3 of the Note above.	Check	Oscilloscope: Slantness of waveform should be 750mV/sec ± 10%.	Fig. 6-11
6. Effect check	Connection: Fig. 6-7	1 kHz/−20 dBV (−10 dB from reference level) 1 kHz/ 0 dBV (+10 dB from reference level)	Check	AC Voltmeter: 30 dB ± 1 dB down from level in item 3.	

6-7. Encoder Section

dBX switch on rear panel: IN
To set the encoder mode, set the unit to REC/PLAY or REC/PAUSE status.

Adjustment	Preparation/Setting	Input Signal	Adjust	Measurement (Place/Value)	Remarks
1. RMS SYM check	LINE B: Feed 1 kHz/10 dBV Adjust input & GRP fader until TP501 (~ TP801) show −10 dBV.	LINE B: 100 Hz/−10dBV (0.3V) Input the signal to the "H" terminal of TP503 (~ TP803) and oscilloscope as shown in Fig. 6-9. TP501 (~TP801) shows −10dBV.	Check	TP503 (~TP803): Output waveform should be 200Hz sinewave.	Fig. 6-10 Connection of AC voltmeter: TP503 (~ TP803)-GND
2. VCA SYM check	Connection: Fig. 6-9 Connect a resistor of about 100 ohm between Pin 6 of U104 and −12V line, and feed input signal as shown in Fig. 6-9. Short-circuit TP501 (~TP801) and GND on R/P PCB. (5mm GND J.W. is provided near TP502-802.)	Feed signal shown in Fig. 6-9 to TP503 (~ TP803) and H terminal of oscilloscope.	Check	Oscilloscope: Monitor waveform should be near a straight line (less than 5mV).	Fig. 6-9
3. Level check	Same as the item 1 of RMS check.	Same as the item 1 of RMS check.	Check	TP502 (~TP802): To be −10 dBV ± 1 dB	
4. Frequency check	Same as above	LINE B: 100Hz/−10dBV	Check	TP502 (~TP802): 1 kHz ‹95 dB ± 1	
		10 kHz/−10dB		1 kHz›3.2 dB ± 1	
5. Release Rate check	—	LINE B: Feed signal shown in Fig. 6-8 (1 kHz, −10dBV, 8 waves on, 128 waves off).	Check	Oscilloscope: Slantness of waveform should be 750mV/sec ± 10%.	Fig. 6-11
6. Effect check	Connection: Fig. 6-7	1 kHz/−70 dBV (−60 dB from reference level) 1 kHz/+10 dBV (+20 dB from reference level)	Check	AC voltmeter: 30 dB ± 1dB down from level in item 3. 10dB ± 1dB up	

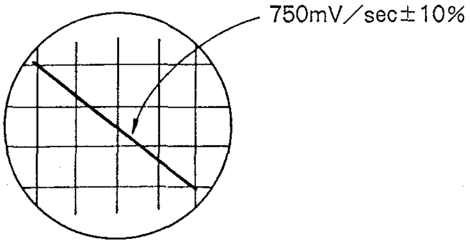


Fig. 6-11
図6−11

6−6. デコーダ調整

REAR PANELのdBX SW…IN
デコードモードにするには，再生かシャトルモード状態にする

調整項目	準備・設定	入力信号	調整箇所	測定箇所・調整値	備考
1. RMS SYM調整	接続：図6−7	TP501（～TP801）： 100Hz／−10dBV（0.3V）	R538（～R838）	TP503（～TP803）： 出力波形が200Hzの正弦波になるよう調整する	図6−10 ACボルトメータの接続： TP503（～TP803)-GND間
2. VCA SYM調整	接続：図6−9 TP501（～TP801）とR／P PCB上のGNDを短絡．（TP502～802の近くに5mm J．WのGNDがある）	TP503（～TP803）とオシロスコープのH端子に，図6−9で示す信号を入力する	R519（～R819）	オシロスコープ： モニタ波形がほぼ一直線（5mV以下）になるよう調整する	図6−9
3. レベル調整	接続：図6−7	TP501（～TP801）： 1kHz／−10dBV　図6−7 注：入力レベル等に問題が生じる場合は，R109（～R409）6.8kをセンターにし，R123（～R423）の両端を短絡して，シャトルモードにする． 又は再生かシャトルモードでU104（～U404）の12ピンと−12V間を100Ω程の抵抗で接続し，10，11ピン間をオープンとして，TP501に上記の信号を−10dBVになるようなレベルで入力する	R509（～R809）	ACボルトメータ： −10dBV（0.3V）	
4. 周波数チェック	同上	TP501（～TP801） 100Hz／−10dBV	チェック	TAPE OUT： 1kHz時より0.72dB±1下がること	
		10kHz／−10dBV	チェック	1kHz時より6.5dB±1上がること	
5. リリースレートチェック	接続：図6−8	TP501（～TP801）： 1kHz／−10dBV（8波on，128波off)，図6−8 3項の注．参照	チェック	オシロスコープ： 波形の傾斜が750mV／sec ±10%であること	図6−11
6. 効果チェック	接続：図6−7	3項の状態から • 1kHz／−20dBV（基準レベルに対し−10dB） • 1kHz／0dBV（基準レベルに対し＋10dB）	チェック	ACボルトメータ： • 3項の状態から20dB±1dB下がること • 20dB±1dB上がること	

6−7. エンコーダ調整

REAR PANELのdBX SW…IN
エンコードモードにするには，REC／PLAYかREC／PAUSE状態にします

調整項目	準備・設定	入力信号	調整箇所	測定箇所・調整値	備考
1. RMS SYMチェック	LINE B： 1kHz／−10dBVを入れTP501（〜TP801）が−10dBVになるようインプット&GRPフェダーを調整する	LINE B： 100Hz／−10dBV（0.3V），TP501（〜TP801）が−10dBV	チェック	TP503（〜TP803）： 出力波形が200Hzの正弦波になっていること	図6−10 ACボルトメータの接続： TP503（〜TP803)-GND間
2. VCA SYMチェック	接続：図6−9 U104（〜U404）の6番ピンと−12V間を100Ω程度の抵抗で短絡、図6−9のように信号を入力する． TP501（〜TP801）とR／P PCB上のGNDを短絡．（TP502−802の近くに5mm J．WのGNDがある）	TP503（〜TP803）とオシロスコープのH端子に，図6−9で示す信号を入力	チェック	オシロスコープ： モニタ波形がほぼ一直線（5mV以下）になっていること	図6−9
3. レベルチェック	1項“RMS SYMチェック”と同じ	1項“RMS SYMチェック”と同じ	チェック	TP502（TP802）： −10dBV±1dBであること	
4. 周波数チェック	1項“RMS SYMチェック”と同じ	LINE B： 100Hz／−10dBV	チェック	TP502（TP802）： 1kHz時より0.5dB±1上がること	
		10kHz／−10dBV		1kHz時より3.2dB±1下がること	
5. リリースレートチェック	—	LINE B： 図6−8に示した信号（1kHz，−10dBV，8波on，128波off）を入力．	チェック	オシロスコープ： 波形の傾斜が750mV／sec±10%であること	図6−11
6. 効果チェック	接続：図6−7	LINE B： 1kHz／−70dBV（基準レベルに対し−60dB） 1kHz／+10dBV（基準レベルに対し+20dB）	チェック	ACボルトメータ： 3項の状態から30dB±1dB下がること 10dB±1dB上がること	

7. CONFIRMATION OF MIDI FUNCTION

MIDI動作確認

You can confirm the MIDI function without using an external MIDI device (such as keyboard, sequencer, etc.). Connect 2 units of the 688 with MIDI cables and confirm the MIDI function.
The items to be confirmed are shown below.

Note: The section 7-2 includes the confirmation as to whether the tape recorder function is proper or not.

7-1. Function (data transmitting and receiving) of MIDI IN/OUT Terminals

Use the factory presets as data (the SCENES 01 through 12 are preset at the factory).

1. Connect 2 units of the 688 with 2 MIDI cables as shown in the illustration and set the MIDI channels for transmission and reception to the same channel.

Note: If the MIDI channels are not set to the same channel, transmission and reception cannot be performed.

2. Maintain the data at the transmission side the same and change some portion of the data at reception side.
3. Switch the SYNC Selector switch on the transmission/reception unit to the SCENE DATA position and keep pressing the STORE/COPY button on the transmission side then press the LOAD/SAVE button. Confirm that the display on the reception side changes the SCENE numbers from 01 to 99 (approx. 2 seconds) and the number 99 will blink then the transmission and reception operations will be complete.
4. Place the SYNC Selector switch on the reception side to the OFF position and check the SCENE numbers from 01 to 99 on the assign display (data). If the contents of the data are same as those of transmission side (factory presets), it is normal. If the contents of data are not same, it means that the data was not received because the hardware of the unit has some problem. (There is no problem in the software.)

7-2. FSK Conversion (internal) Function for Saving onto Tape

You can verify with one unit of the 688.

1. Record the factory preset data onto a tape.
2. Change some portion of the factory preset data.
3. Load the tape, when loading is completed verify that the SCENE numbers 01 through 99 on the assign display is same as those of the factory presets.
   If they are not same as the factory presets, the hardware (including the Record/Playback amplifier circuit) of the unit has a problem.

Note: You can check if the data is recorded onto the tape by monitoring the TRK-4.

実際に外部MIDI機器（キーボード，シーケンサー等）を使用しなくても，2台の688をMIDIケーブルで接続することにより，MIDIの動作確認をすることができます.
確認項目は，次の通りです．尚，7−2項は，テープ・レコーダ機能の良否も含まれます.

7−1. MIDI IN／OUT端子からの動作（データの送受信）

FACTORY PRESET (SCENE 01〜12までセット済み）をデータとして使用します.

1．2台の 688 を図のようにMIDIケーブル2本で接続し，送受信のMIDI CH を一致させる.
注．MIDI CH が一致していない場合は，送受信できません.

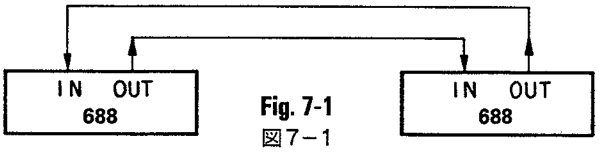


Fig. 7-1
図7−1

2．送信側のデータはFACTORY PRESETのままで，受信側のデータを一部変更する.
3．送受信本体のSYNC SELECTOR をSCENE DATAのポジションに切換え，送信側のSTORE/COPYキーを押しながらLOAD/SAVEキーを押すと，受信側ディスプレーが SCENE 01 〜99まで（約2秒）変化し，99のNO. が点滅となり送受信終了となることを確認する.
4．受信側本体のSYNC SELECTOR をOFF のポジションに切換え，受信側のSCENE 01〜12・・・99までのアサインの表示（データ）を確認する．このとき，データの内容が送信側のデータ（FACTORY PRESET）と同じであれば正常です.
もし，送信側のデータと同じでなかった場合は，データが受信されなかったということで本体のハードに何らかの問題があります．（ソフト上の問題は一切ありません.）

7−2. TAPE SAVE用FSK変換（内部）動作

1台の 688 で確認を行います.

1．FACTORY PRESETデータをテープに記録する.
2．FACTORY PRESETデータを一部変更する.
3．テープをLOADし，終了後 SCENE 01 〜12・・・99までのアサイン表示が，FACTORY PRESETになっていることを確認する.
もし，FACTORY PRESETになっていない等の場合は本体のハード（R/P アンプ回路も含む）に問題があります.
尚，テープに記録されたかどうかは，TRK-4 をモニターすることで判断することができます.

8. MIDI DATA FORMAT

MIDIデータ・フォーマット

8-1. Kinds of Messages

1. MIDI TAPE SYNC by F8, FA and FC (for transmission and reception), FB and F2 (for transmission only).

2. Channel Mute On/Off by NOTE ON/OFF.

3. SCENE Number settings by PROGRAM CHANGE.

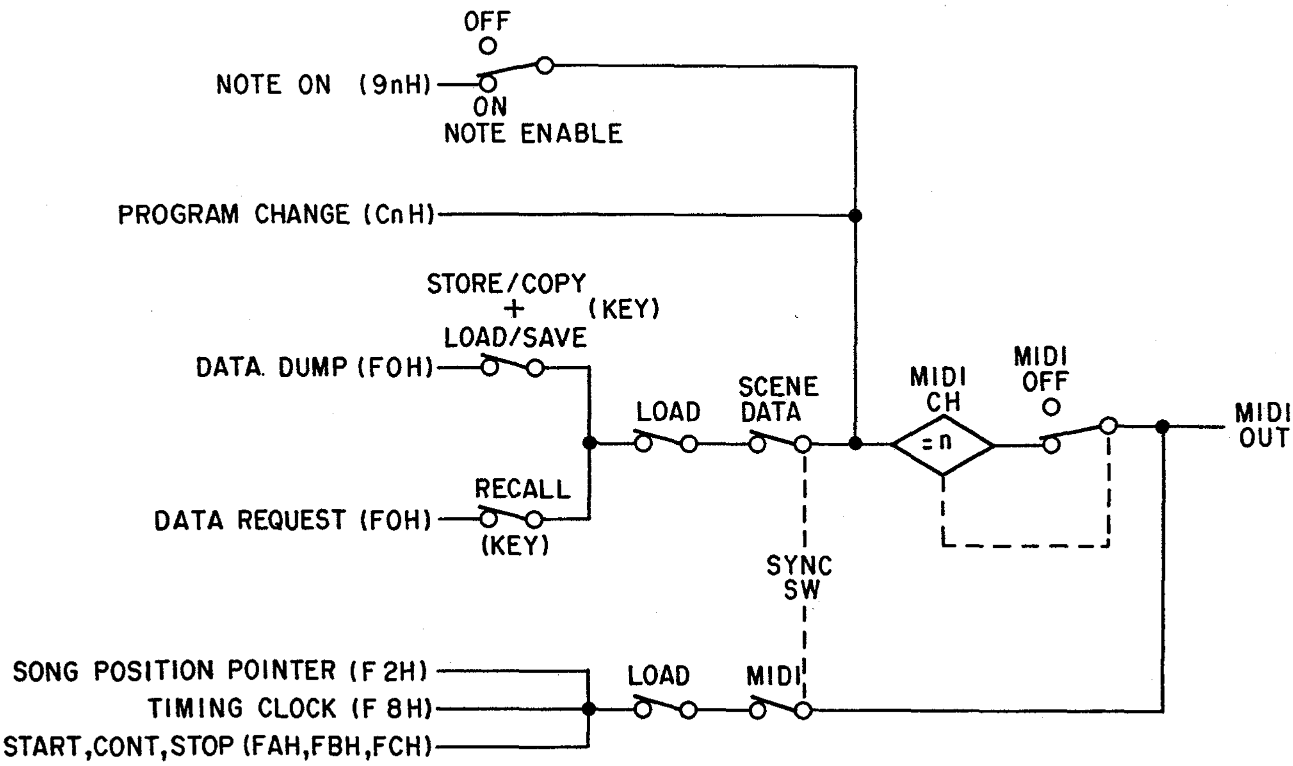
4. Saving and loading of SCENE data by EXCLUSIVE.

8-2. Transmission Conditions

8−1. メッセージの種類

1. 送受信F8,FA,FC, 送信時のみ FB,F2によるMIDI TAPE SYNC
2. NOTE ON/OFF によるCHANNEL MUTE ON/OFF
3. PROGRAM CHANGEによるSCENE NO. のセット
4. EXCLUSIVE によるSCENE DATAのセーブ, ロード

8−2. 送信条件



OFF
NOTE ON (9nH)
ON
NOTE ENABLE
PROGRAM CHANGE (CnH)
STORE/COPY
+
(KEY)
LOAD/SAVE
DATA. DUMP (FOH)
RECALL
DATA REQUEST (FOH)
(KEY)
LOAD
SCENE
DATA
MIDI
CH
=n
MIDI
OFF
MIDI
OUT
SYNC
SW
SONG POSITION POINTER (F 2H)
TIMING CLOCK (F 8H)
START,CONT,STOP (FAH,FBH,FCH)
LOAD
MIDI

Fig. 8-1
図8−1

- **NOTE ON/OFF**
  Outputs when the CH MUTE signal is accepted. But if the MIDI channel or the Note Enable is set to off, the signal will not be output.

- **PROGRAM CHANGE**
  Outputs when the RECALL button is pressed or the foot switch is used. But if the storing is in progress or the MIDI Channel is set in the off position, the signal will not be output.

●NOTE ON/OFF
CH MUTE を受付けたとき出力されます.
但し, MIDI CHANNELが "OFF " 又は, NOTE ENABLE の設定が "OFF"のときは出力されません.

●PROGRAM CHANGE
SCENE MODE で "RECALL" を押したとき又は, FOOT SWITCH 使用のとき出力されます.
但し, STORE 状態又は, MIDI CHANNELが "OFF " のときは出力されません.

8-3. Transmission Data

8－3. 送信データ

«Channel voice messages

(チャネルボイスメッセージ)

1. NOTE ON/OFF

1001nnnn(9nH)	STATUS	n = CHANNEL NUMBER
0kkkkkkk	NOTE NO.	k = 36 (C1) — 45 (A-1)
0vvvvvvv	Velocity	MUTE ON : V = 96 (01100000)
		MUTE OFF : V = 32 (00100000)

2. PROGRAM CHANGE

1100nnnn(CnH)	STATUS	n=CHANNEL NUMBER
0ppppppp	PROGRAM NO.	p=0 — 98

«System real time message/System common messages

(システムリアルタイムメッセージ／システムコモンメッセージ)

11111000(F8H)	TIMING CLOCK
11111010(FAH)	START
11111011(FBH)	CONTINUE
11111100(FCH)	STOP
11110010(F2H)	SONG POSITION POINTER
0lllllll	lllllll: (LEAST SIGNIFICANT)
0hhhhhhh	hhhhhhh : (MOST SIGNIFICANT)

«System exclusive messages （システムエクスクルーシブメッセージ）

1. Data dump

a. Data

11110000(F0H)	STATUS	
01001110(4EH)	TEAC ID NUMBER	
0001nnnn(1nH)	DEVICE NUMBER n = MIDI CHANNEL	
00000001(01H)	OPERATION CODE(Data dump)	
00000100(04H)	FORMAT TIPE(C)	
01101010(6AH)	BYTE COUNT(107)	
01000100(44H)	688 DISCRIMINATION DATA	107 BYTE
00110001(31H)	688 識別データ	
0aaaaaaa	DATA No. (1 — 50)	
0ddddddd	DATA (104 BYTE) ddH=00 — 7FH	
⋮		
0dddddd		
0eeeeee CHECK SUM	CHECK SUM	
11110111(F7H)	END OF EXCLUSIVE	

b. End data

11110000(F0H)	STATUS
01001110(4EH)	TEAC ID NUMBER
0001nnnn(1nH)	DEVICE NUMBER n = MIDI CHANNEL
00000001(01H)	OPERATION CODE(Data dump)
00000100(04H)	FORMAT TIPE(C)
00000100(04H)	BYTE COUNT (5)
01000100(44H)	688 DISCRIMNATION DATA
00110001(31H)	688 識別データ
01000101(45H)	ASCII "E"
01001110(4EH)	ASCII "N"
01000100(44H)	ASCII "D"
01001101(4DH)	CHECK SUM
11110111(F7H)	END OF EXCLUSIVE

2. Request data

11110000(F0H)	STATUS
01001110(4EH)	TEAC ID NUMBER
0001nnnn(1nH)	DEVICE NUMBER n = MIDI CHANNEL
00000010(02H)	OPERATION CODE (Request data)
11110111(F7H)	END OF EXCLUSIVE

8-4. Receiving Condition

8−4. 受信条件

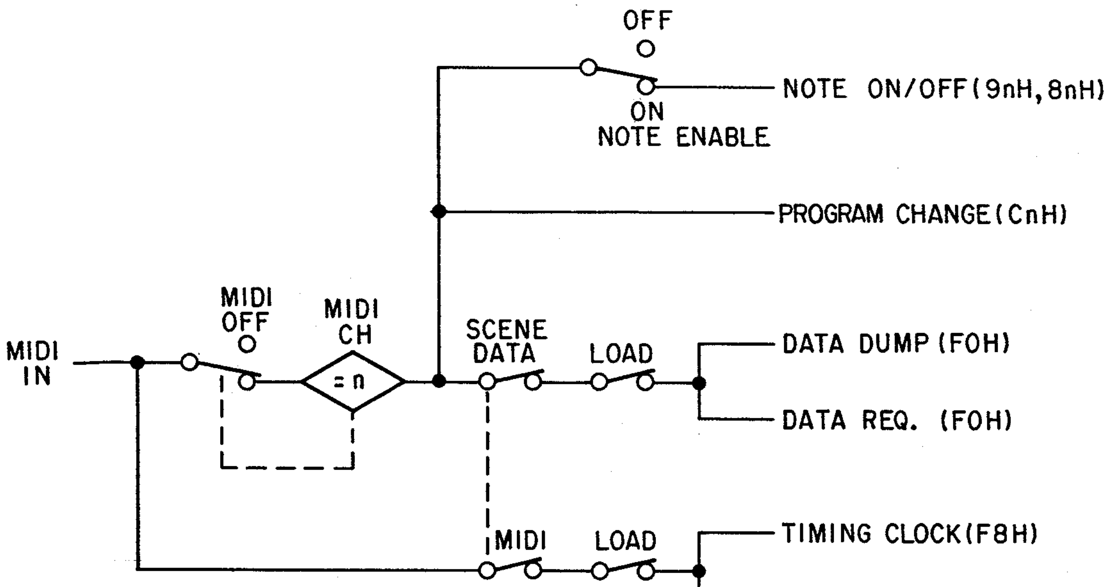

OFF
ON
NOTE ENABLE
NOTE ON/OFF(9nH, 8nH)
PROGRAM CHANGE(CnH)
MIDI IN
MIDI OFF
MIDI CH
=n
SCENE DATA
LOAD
DATA DUMP (FOH)
DATA REQ. (FOH)
MIDI
LOAD
TIMING CLOCK(F8H)
START STOP(FAH FCH)

Fig. 8-2

図8−2

* **NOTE ON/OFF**
Can accept at all times except when the MIDI Channel is off, or the setting of the Note Enable is off, or the transmission channel and reception channel are different.

* **PROGRAM CHANGE**
Can accept at all times except when storing is being performed, or the MIDI Channel is off, or the transmission channel and reception channel are different.

●NOTE ON/OFF

MIDI CHANNELが "OFF"，NOTE ENABLE の設定が "OFF" 又は，送受信CHが一致しないとき以外は受付け可能です．

●PROGRAM CHANGE

STORE 状態，MIDI CHANNELが "OFF" 又は，送受信CHが一致しないとき以外は受付け可能です．

8-5. Reception Data

8−5. 受信データ

« channel voice messages

（チャンネルボイスメッセージ）

1. NOTE ON/OFF

1001nnnn(9nH)	STATUS	n=CHANNEL NUMBER
0kkkkkkk	NOTE No.	k=36(C1) — 45 (A-1)
0vvvvvvv	Velocity	MUTE ON : v=64 — 127
		MUTE OFF : v=1 — 63

2. PROGRAM CHANGE

1100nnnn(CnH)	STATUS	n=CHANNEL NUMBER
0ppppppp	PROGRAM NO.	p=0 — 98

«System real time message/System common messages

（システムリアルタイムメッセージ／システムコモンメッセージ）

11111000(F8H)	TIMING CLOCK
11111010(FAH)	START
11111100(FCH)	STOP

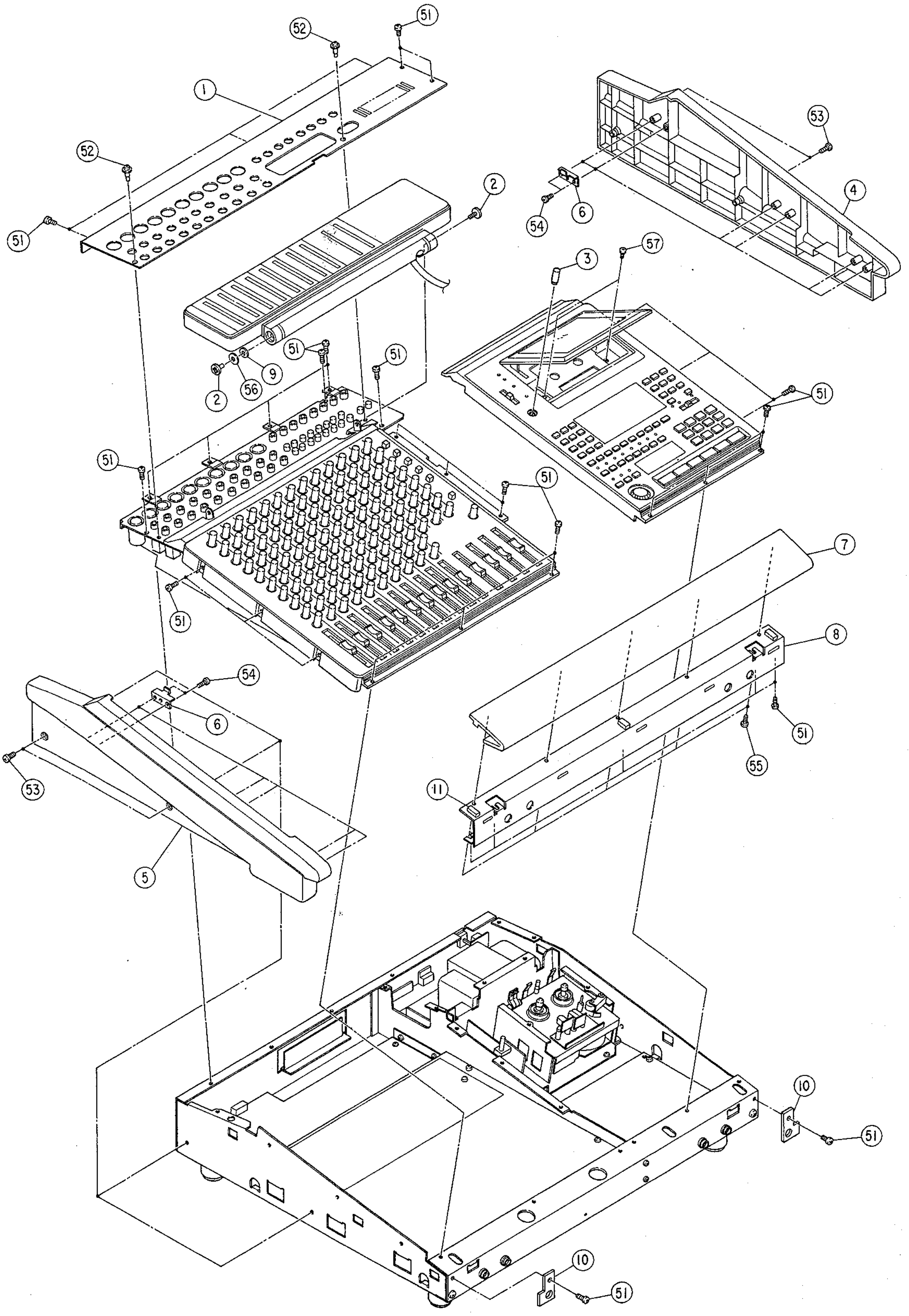
«System exclusive message

Same as transmission data.

9. EXPLODED VIEWS AND PARTS LIST

分解図と部品表

EXPLODED VIEW — 1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(51)

EXPLODED VIEW-1

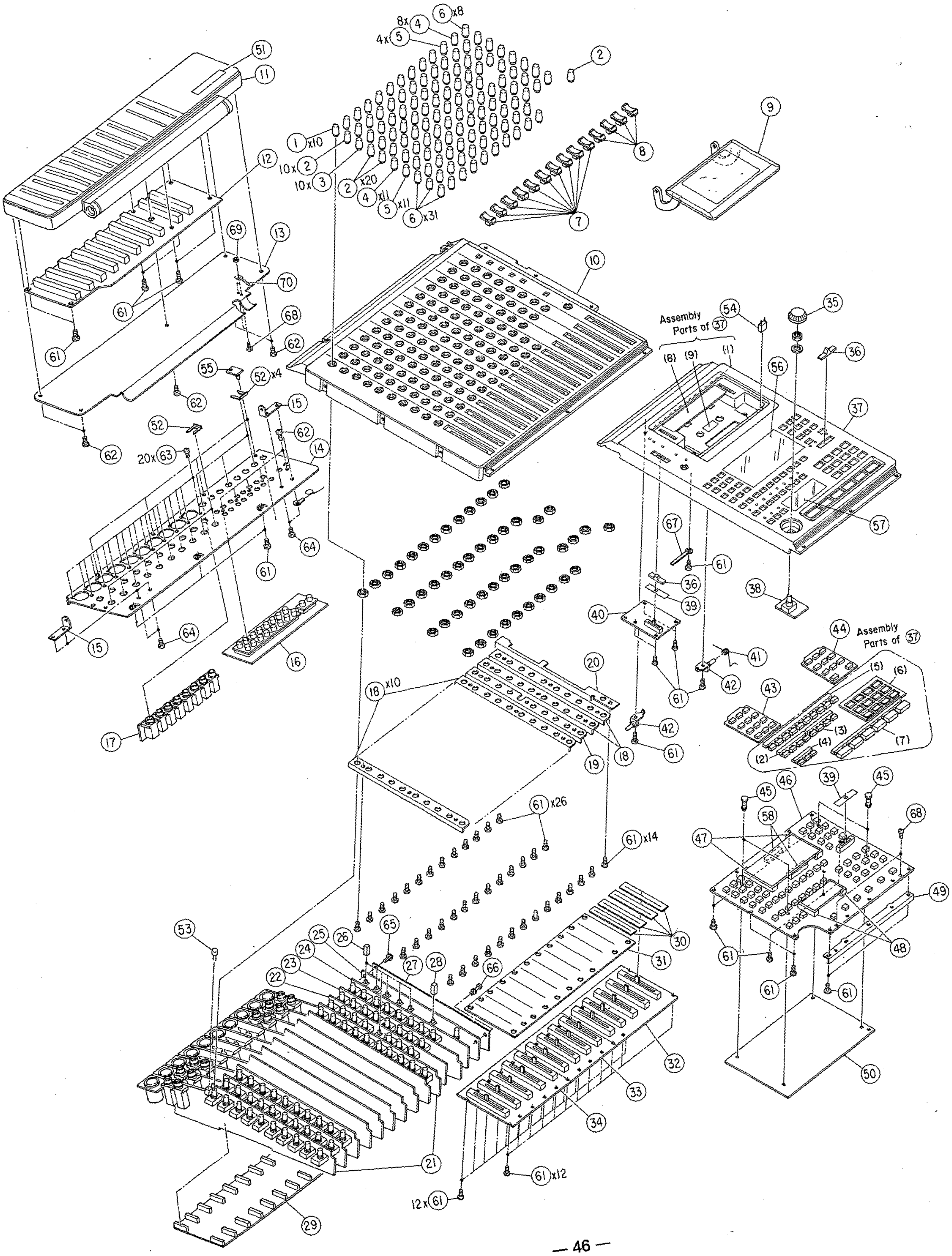
REF.NO.	PARTS NO.	DESCREPTION	REMARKS
1- 1	*5801267400	IN/OUT PANEL	
1- 2	*5801280500	SHAFT	
1- 3	5801262300	KNOB,RED	
1- 4	*5801267600	SIDE PANEL R	
1- 5	*5801267500	SIDE PANEL L	
1- 6	*5801265800	PLATE,SIDE PANEL HOLD	
1- 7	*5801267700	PAD	
1- 8	*5801267300	FRONT PANEL	
1- 9	*5801302900	WASHER;TEFLON 4X10X0.3T	
1-10	*5801307700	STOPPER METAL FITTINGS	
1-11	*5801302100	CUSHION	
1-51	*5783693006	SCREW,BIND S TITE M3X6 (BLK NI)	
1-52	*5801283900	SCREW	
1-53	*5780024012	SCREW,BIND M4X12 (BLK NI)	
1-54	*5783603008	SCREW,BIND P TITE M3X8	
1-55	*5783602606	SCREW,BIND P TITE M2.6X6	
1-56	*5785024700	FLAT WASHER 4X12X1T	
1-57	*5780022608	SCREW,BIND M2.6X8 (BLK NI)	

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

688

EXPLODED VIEW — 2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10x 2
10x 3
2 x20
4 x11
5 x11
6 x31
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54
35
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(1)
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61
44
Assembly Parts of 37
(5)
(6)
43
(3)
(4)
(2)
(7)
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18 x10
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61 x14
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61 x12
12x 61
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EXPLODED VIEW-2

REF.NO.	PARTS NO.	DESCREPTION	REMARKS
2- 1	5801262300	KNOB,RED	
2- 2	5801262200	KNOB,ORG	
2- 3	5801262400	KNOB,YLW	
2- 4	5801262000	KNOB,GRN	
2- 5	5801261900	KNOB,BLU	
2- 6	5801262100	KNOB,GRY	
2- 7	5801262500	KNOB,FADER ORG	
2- 8	5801262600	KNOB,FADER RED	
2- 9	5801259500	COVER,CASSETTE	
2-10	*5801267800	ESCTCHEON L	
2-11	*5801267900	METER PANEL ASSY	
2-12	*5200285300	METER PCB ASSY	Ref. pages 61&72
2-13	*5801266600	COVER,METER PANEL	
2-14	*5801266500	IN/OUT CHASSIS	
2-15	*5801271100	METER HOLD PLATE	
2-16	*5200285600	IN/OUT PCB ASSY	Ref. pages 64&73
2-17	*5200286200	JACK-C PCB ASSY	Ref. pages 64&73
2-18	*5801266000	PCB HOLD PLATE A	
2-19	*5801266100	PCB HOLD PLATE B	
2-20	*5801266200	MONITOR PCB HOLD PLATE	
2-21	*5200284100	INPUT PCB ASSY	Ref. pages 63&73
2-22	*5200284300	MONITOR-A PCB ASSY	Ref. pages 64&74
2-23	*5200284400	MONITOR-B PCB ASSY	Ref. pages 65&74
2-24	*5200284600	MONITOR-C PCB ASSY	Ref. pages 65&74
2-25	*5200284700	MONITOR-D PCB SSY	Ref. pages 66&74
2-26	*5801262800	BUTTON,ASSIGN GRY	
2-27	*5801301700	SEALED PLATE	
2-28	5801276500	BUTTON,ASSIGN ORG	
2-29	*5200285800	BUSS PCB ASSY	Ref. pages 59&71
2-30	*5801268900	MASK A	
2-31	*5801269000	MASK B	
2-32	*5200286000	GRP MASTER PCB ASSY	Ref. pages 60&71
2-33	*5200287100	VR(2)PCB ASSY	Ref. pages 59&71
2-34	*5200285900	VR(1)PCB ASSY	Ref. pages 59&71
2-35	5801263200	KNOB,SHUTTLE	
2-36	5801263300	KNOB,SLIDE	
2-37	*5801268401	ESCUTCHEON(R) ASSY	
(1)	*5801268500	ESCUTCHEON R	
(2)	5801259200	BUTTON(A),CONTROL	
(3)	5801259300	BUTTON(B),CONTROL	
(4)	5801268700	BUTTON(C),CONTROL	
(5)	5801259100	BUTTON,CHANNEL	
(6)	5801259000	BUTTON,COUNTER	
(7)	5801258900	BUTTON,OPERATION	
(8)	5801258600	ADAPTER,CASE	
(9)	*5800602901	REFLECTING MIRROR	
2-38	*5200277000	SHTL PCB ASSY	Ref. pages 69&76
2-39	*5801261400	SW MASK	
2-40	*5200286300	LED PCB ASSY	Ref. pages 67&75
2-41	5801259900	SPRING,UP	
2-42	*5801259600	METAL,CASSETTE COVER ASSY	
2-43	*5801268200	DISPLAY BUTTON C	
2-44	*5801268300	DISPLAY BUTTON D	
2-45	*5787033000	PCB SUPPORT KGLS-10R	
2-46	*5200276410	SW PCB ASSY	Ref. pages 56&70

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

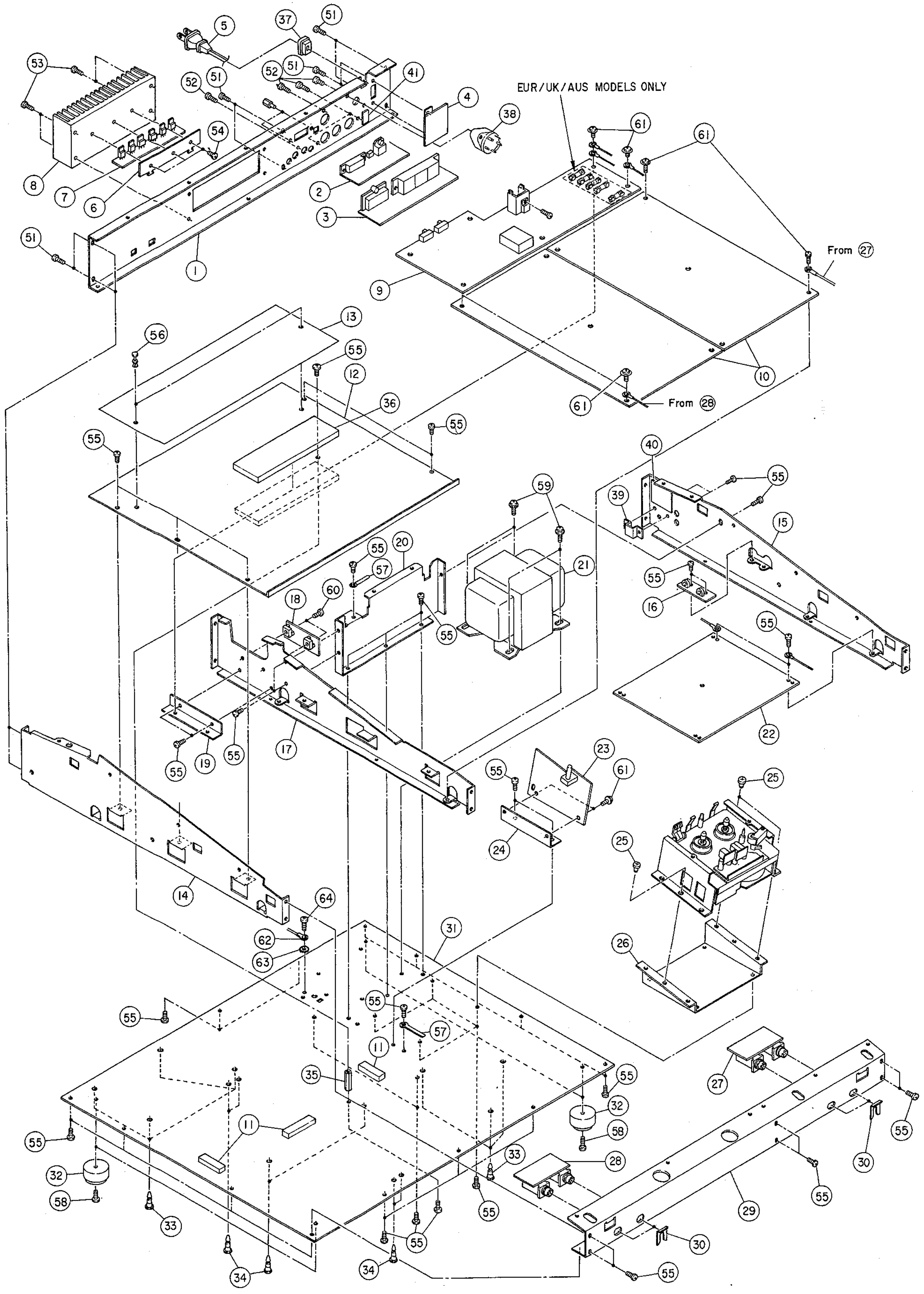
EXPLODED VIEW-2

REF.NO.	PARTS NO.	DESCREPTION	REMARKS
2-47	*5801261600	LCD SPACER L	
2-48	*5801261700	LCD SPACER S	
2-49	*5801301900	SW PCB HOLD PLATE	
2-50	*5200276511	ASN CONT PCB ASSY	Ref. pages 69&76
2-51	*5720201400	BADGE,TASCAM	
2-52	*5317005800	MOUNT PLATE S	
2-53	5225021500	LED,SLP177B-60	
2-54	*5730035100	LATCH	
2-55	*5730035200	HINGE	
2-56	*5801268601	WINDOW(2),DISPLAY	
2-57	*5801258801	WINDOW,COUNTER	
2-58	*5801302100	CUSHION	
2-61	*5783603008	SCREW,BIND.P-TITE M3X8	
2-62	*5783543008	SCREW,BIND.PT M3X8 (BLK NI)	
2-63	*5780122604	SCREW,PAN M2.6X4 (BLK NI)	
2-64	*5780103003	SCREW,PAN HEAD M3X3	
2-65	*5783073006	SCREW,CUP S TITE M3X6	
2-66	*5534878000	RIVET,PUSH B M144	
2-67	*5786713000	CLIP,HARNESS 3.0X9.1X50	
2-68	*5783693006	SCREW,BIND S TITE M3X6 (BLK NI)	
2-69	*5781813000	NUTS,#1 M3	
2-70	*5801307600	EARTH PLATE	

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

EXPLODED VIEW — 3



EXPLODED VIEW-3

REF.NO.	PARTS NO.	DESCREPTION	REMARKS
3- 1	*5801267200	REAR PANEL [EXCEPT EX]	
	*5801306500	REAR PANEL [GE]	
3- 2	*5200276811	REMOTE PCB ASSY	Ref. pages 63&73
3- 3	*5200276910	SYNC PCB ASSY	Ref. pages 63&73
3- 4	*5200285000	POWER SW PCB ASSY [J,C,GE]	Ref. pages 62&72
	*5200285010	POWER SW PCB ASSY [E,UK,A]	Ref. pages 62&72
	*5200285020	POWER SW PCB ASSY [US]	Ref. pages 62&72
3- 5	⚠ 5128027000	CORD,AC [J]	
	⚠ 5350010700	CORD,AC UL SPT-2 [US]	
	⚠ 5350008100	CORD,AC CSA 2M 3P [C]	
	⚠ 5350010800	CORD,AC UL SPT-1 [GE]	
	⚠ 5350011700	CORD,AC CEE CLASS-2 [E]	
	⚠ 5128047000	CORD,AC [UK]	
	⚠ 5350008300	CORD,AC ASS [A]	
3- 6	*5801265500	PRESSURE METAL	
3- 7	*5200285200	JOINT PCB ASSY	Ref. pages 67&75
3- 8	*5801265900	HEATSINK	
3- 9	*5200284900	POWER SUPPLY PCB ASSY [J,US,C,GE]	Ref. pages 61&72
	*5200284910	POWER SUPPLY PCB ASSY [E,UK,A]	Ref. pages 61&72
3-10	*5200285400	R/P PCB ASSY	Ref. pages 57&70
3-11	*5801302100	CUSHION	
3-12	*5801266400	R/P SEALED PLATE	
3-13	*5801269100	FRICTION SHEET	
3-14	*5801266700	L.CHASSIS	
3-15	*5801266800	R.CHASSIS	
3-16	*5200286100	ADJ PCB ASSY	Ref. pages 68&75
3-17	*5801266900	C CHASSIS	
3-18	*5200295900	DIODE PCB ASSY	Ref. pages 62&72
3-19	*5801265600	POWER PCB HOLD PLATE	
3-20	*5801266300	SEALED PLATE A	
3-21	⚠ 5320055200	POWER TRANSFORMER [J]	
	⚠ 5320055300	POWER TRANSFORMER [US,C]	
	⚠ 5320055400	POWER TRANSFORMER [GE]	
	⚠ 5320055500	POWER TRANSFORMER [E,UK,A]	
3-22	*5200276210	MECHA CONT PCB ASSY	Ref. pages 68&75
3-23	*5200285500	PITCH CONT PCB ASSY	Ref. pages 67&75
3-24	*5801265700	PITCH CON.PCB HOLD PLATE	
3-25	*5581056000	SHAFT;A	
3-26	*5801271200	PLATE,MECHA HOLD	
3-27	*5200276701	JACK-B PCB ASSY	Ref. pages 69&76
3-28	*5200276610	JACK-A PCB ASSY	Ref. pages 69&76
3-29	*5801267100	FRONT CHASSIS	
3-30	*5317005800	PLATE(S),MOUNT	
3-31	*5801267000	BOTTOM CHASSIS	
3-32	*5534596000	FOOT	
3-33	*5787007200	PCB SUPPORT RSPLS-8	
3-34	*5787007100	PCB SUPPORT RSPLS-6	
3-35	*5801307900	PIPE	
3-36	*5801314500	CUSHION	
3-37	*5317003400	BUSHING 2271 [EXCEPT C]	
	*5317005600	BUSHING 2272 [C]	
3-38	⚠ 5302101700	SW.,VOLTAGE SELECT FS907G [GE]	
3-39	*5801307800	BRACKET [E,UK,A]	
3-40	*5801309800	FRICTION SHEET B [E,UK,A]	
3-41	*5801350600	FRICTION SHEET C [E,UK,A]	

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

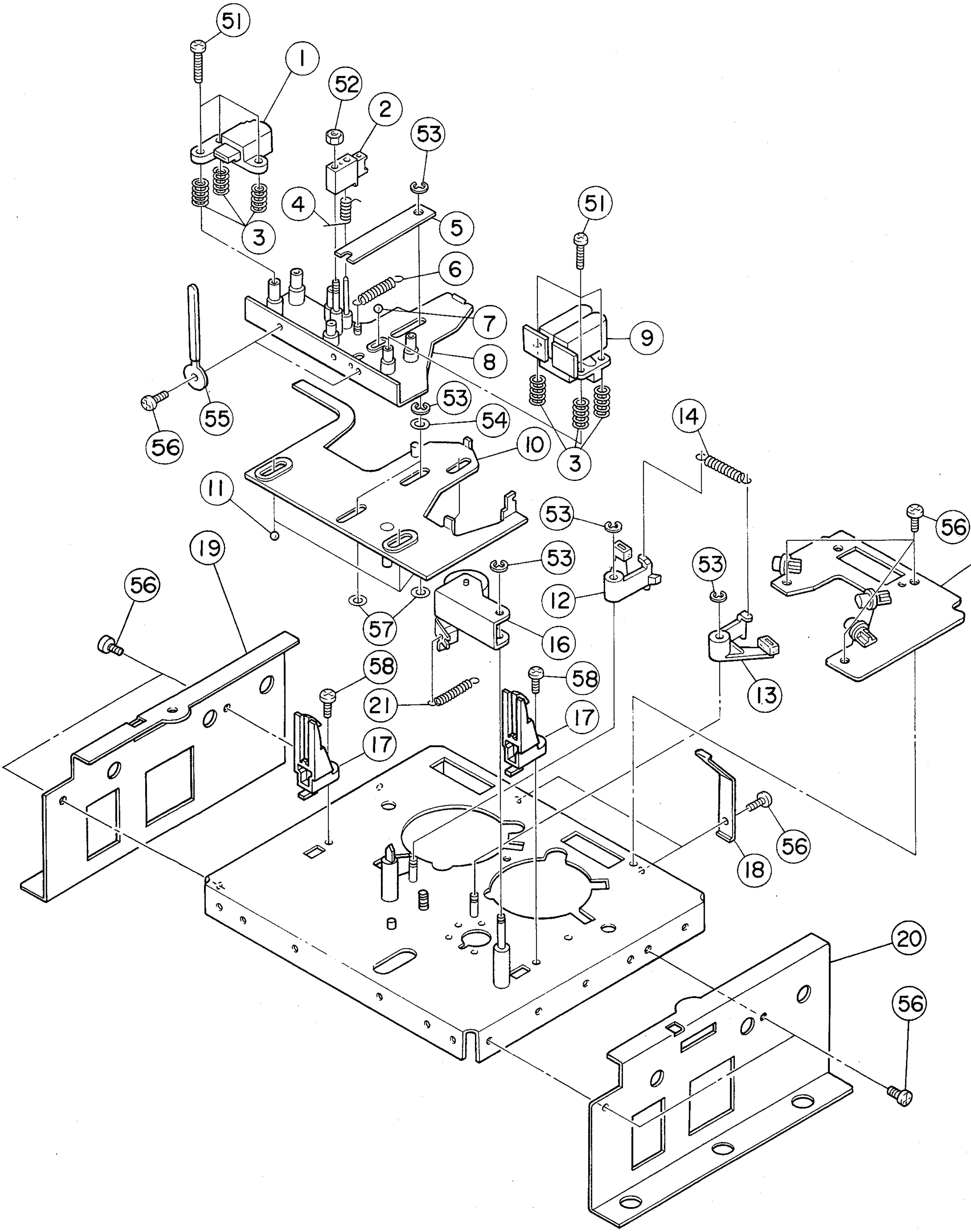
EXPLODED VIEW-3

REF.NO.	PARTS NO.	DESCREPTION	REMARKS
3-51	*5783693006	SCREW,BIND S TITE M3X6 (BLK NI)	
3-52	*5783543008	SCREW,BIND.PT M3X8(BLK NI)	
3-53	*5780122612	SCREW,PAN M2.6X12(BLK NI)	
3-54	*5781113010	SCREW,B.TAPP.#2 M3X10	
3-55	*5783033005	SCREW,BIND S TITE M3X5	
3-56	*5786610100	PUSH RIVET RP-3035-NB	
3-57	*5786713000	CLIP,HARNESS 3.0X9.1X50	
3-58	*5780024012	SCREW,BIND M4X12 (BLK NI)	
3-59	*5783074008	SCREW,CUP S TITE M4X8	
3-60	*5783033010	SCREW,BIND S TITE M3X10	
3-61	*5783073006	SCREW,CUP S TITE M3X6	
3-62	*5786700600	EARTH LUG B-6 4.2 [C ONLY]	
3-63	*5785124000	TOOTHED LOCK WASHER 4.0 [C ONLY]	
3-64	*5783004006	SCREW,PAN S TITE M4X6	

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

EXPLODED VIEW — 4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EXPLODED VIEW-4

REF.NO.	PARTS NO.	DESCREPTION	REMARKS
4- 1	5378601700	HEAD,ERASE 8TR8CH	
4- 2	5801091300	GUIDE,TAPE	
4- 3	5800931300	SPRING,HEAD	
4- 4	5801091200	SPRING,TAPE GUIDE	
4- 5	5800595500	SPRING,PRESSURE	
4- 6	5800615400	SPRING,HEAD BASE	
4- 7	5540055000	STEEL BALL 20	
4- 8	*5801090600	HEAD BASE ASSY	
4- 9	5378601600	HEAD,R/P 8TR8CH	
4-10	*5801090300	SLIDER ASSY	
4-11	5540056000	STEEL BALL 30	
4-12	*5800620000	ARM ASSY,BRAKE L	
4-13	*5800619900	ARM ASSY,BRAKE R	
4-14	5800616100	SPRING,BRAKE	
4-15	*5200250901	SENSOR PCB ASSY	Ref. pages 67&75
4-16	5801091400	PINCH ARM ASSY	
4-17	5801197100	GUIDE,CASSETTE(U)	
4-18	5801197200	HALF PRESSURE SPG.(U)	
4-19	*5801198300	PLATE(L1),MECHA HOLD	
4-20	*5801198400	PLATE(R1),MECHA HOLD	
4-21	5800955800	SPRING,P.ROLLER(R)	
4-51	*5730029400	SCREW, PWA2*8FNI	
4-52	*5781952000	NYLON NUTS,M2	
4-53	*5786002000	E-RING, E-2 (JIS)	
4-54	*5785313000	WASHER,POLIS. 3X6X0.5T	
4-55	*5786713400	HARNESS CLIP 3.2X6.0X47	
4-56	*5783002605	SCREW,PAN S-TITE M2.6X5	
4-57	*5785303100	WASHER,POLIS. 3X6X0.25T	
4-58	*5783032606	SCREW, BIND S TITE M2.6X6	

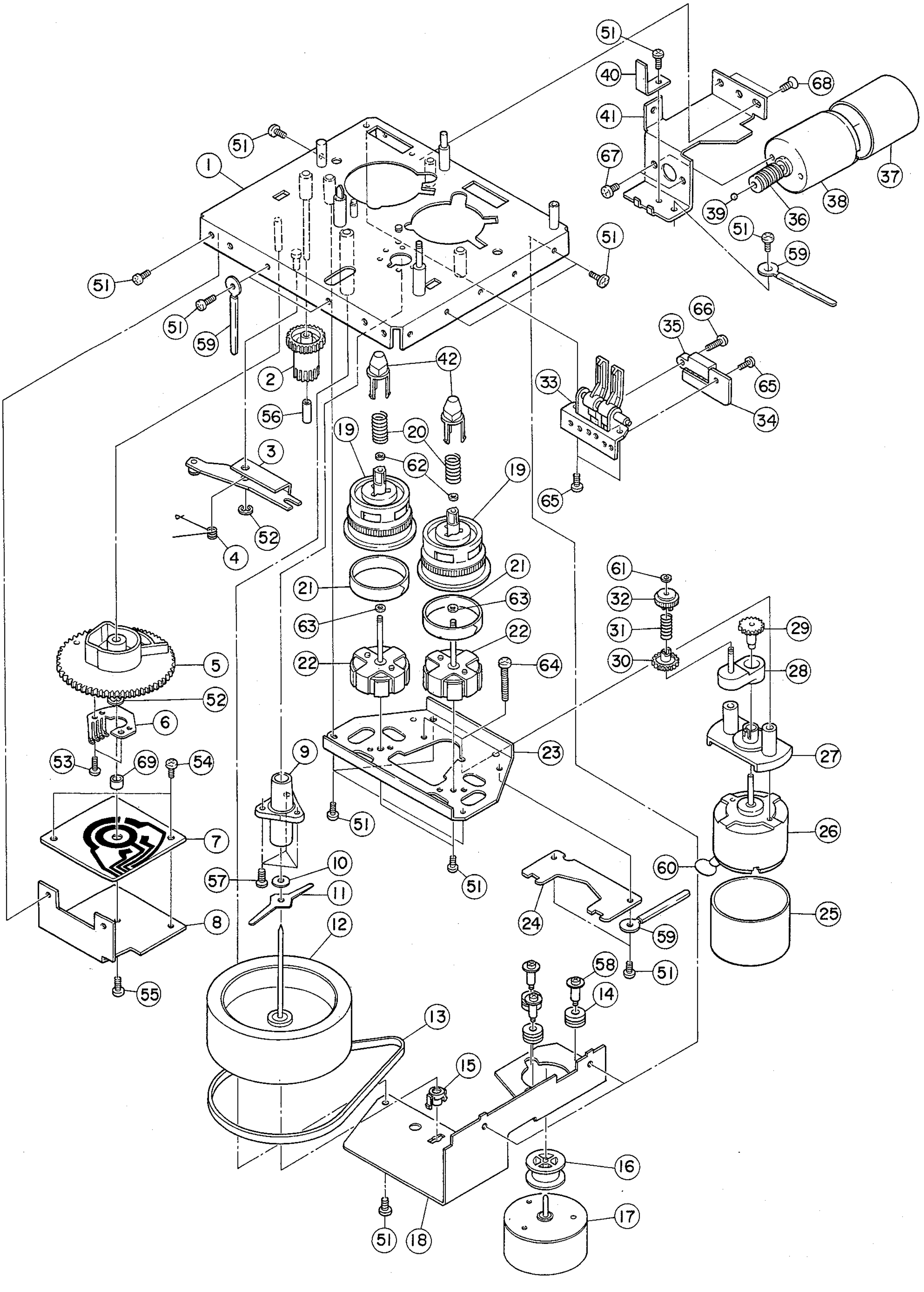
EXPLODED VIEW-5

REF.NO.	PARTS NO.	DESCREPTION	REMARKS
5- 1		CHASSIS ASSY(B),MECHA	
5- 2	5801093000	GEAR,RELAY	
5- 3	*5801092500	BASE ARM ASSY	
5- 4	5801092400	BASE ARM SPG.	
5- 5	5800737800	CAM.CONTROL	
5- 6	*5800595300	PLATE,CONTACT	
5- 7	*5210251800	CAM PCB	
5- 8	*5801092900	CAM PCB BRACKET	
5- 9	5800732100	HOLDER ASSY,METAL	
5-10	*5800729400	WASHER(A);TEFLON	

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

EXPLODED VIEW — 5


51
40
68
41
51
1
67
37
38
39
36
51
59
51
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51
59
66
35
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2
42
33
34
56
19
20
3
62
19
65
52
4
21
61
21
63
32
63
22
31
29
5
22
64
30
28
52
6
23
27
9
53
69
54
7
51
26
10
60
57
11
51
8
24
59
12
25
58
51
55
14
13
15
16
18
51
17

EXPLODED VIEW-5

REF.NO.	PARTS NO.	DESCREPTION	REMARKS
5-11	5801197900	THRUST SPG(U).	
5-12	5801204400	CAPSTAN ASSY(L62)	
5-13	5800735500	BELT	
5-14	*5534537001	GOM,NON VIBRATION	
5-15	*5801198100	THRUST RECEIVE(F)	
5-16	5801198200	CAP.PULLEY 12.7	
5-17	5370008700	MOTOR,CAP.DC EG-530KD-2B	
5-18	*5801204600	FW RECEIVE PLATE(B)	
5-19	5800731501	REEL TABLE ASSY	
5-20	5800231300	SPG.,REEL	
5-21	*5800731400	HYSTERESIS RING	
5-22	5801092000	COIL UNIT	
5-23	*5801091900	REEL BRACKET	
5-24	*5210251600	MECHA JOINT PCB	
5-25	*5800235900	SEALED PLATE	
5-26	5370002502	MOTOR,R.DC .015 0.2	
5-27	*5800732603	MOTOR HOLDER	
5-28	5800461500	ARM ASY,PULLEY	
5-29	5800736000	PULLEY,GEAR A	
5-30	5800461600	PULLEY B ASY,GEAR	
5-31	5800430200	SPRING,PULLEY	
5-32	5800430302	IDLER ASSY	
5-33	*5801091600	SW ARM ASSY	
5-34	*5210251700	SW PCB	
5-35	5302107300	SW.,TAPE SELECTOR.SPPW62	
5-36	5801093300	WORM	
5-37	*5801204700	SEALED(A) PLATE,MOTOR	
5-38	5370008200	MOTOR,DC MXN-13FB09B	
5-39	5540056000	STEEL BALL 30	
5-40	5801093200	THRUST SPG.	
5-41	*5801093100	ASSIST MOTOR BRACKET	
5-42	*5800236501	RING,DRIVE	
5-51	*5783002605	SCREW,PAN S-TITE M2.6X5	
5-52	*5786002000	E-RING, E-2 (JIS)	
5-53	*5781112004	SCREW,B.TAPP.#2 M2X4	
5-54	*5783032605	SCREW,BIND.S-TITE M2.6X5	
5-55	*5780002004	SCREW,BIND M2X4	
5-56	*5785602085	SPACER 2.0X8.5MM	
5-57	*5783032606	SCREW,BIND S TITE M2.6X6	
5-58	*5730033100	SCREW, M2.6X5-2	
5-59	*5786713400	HARNESS CLIP 3.2X6.0X47	
5-60	*5173395000	C.,CERAMIC 0.047MF 50V	
5-61	*5785331500	WASHER,POLIS. 1.5X4X0.5T	
5-62	*5785331100	WASHER,POL 1.2X3.6X0.5T	
5-63	*5785301100	WASHER,POLIS. 1.5X4X0.25T	
5-64	*5780002617	SCREW,B M2.6X17	
5-65	*5783032003	SCREW, BIND S TITE M2X3	
5-66	*5783032006	SCREW,BIND S TITE M2X6	
5-67	*5780003003	SCREW,BIND M3X3	
5-68	*5783042605	SCREW,FLAT S TITE M2.6X5	
5-69	*5785604035	SPACER 4.0X3.5MM	

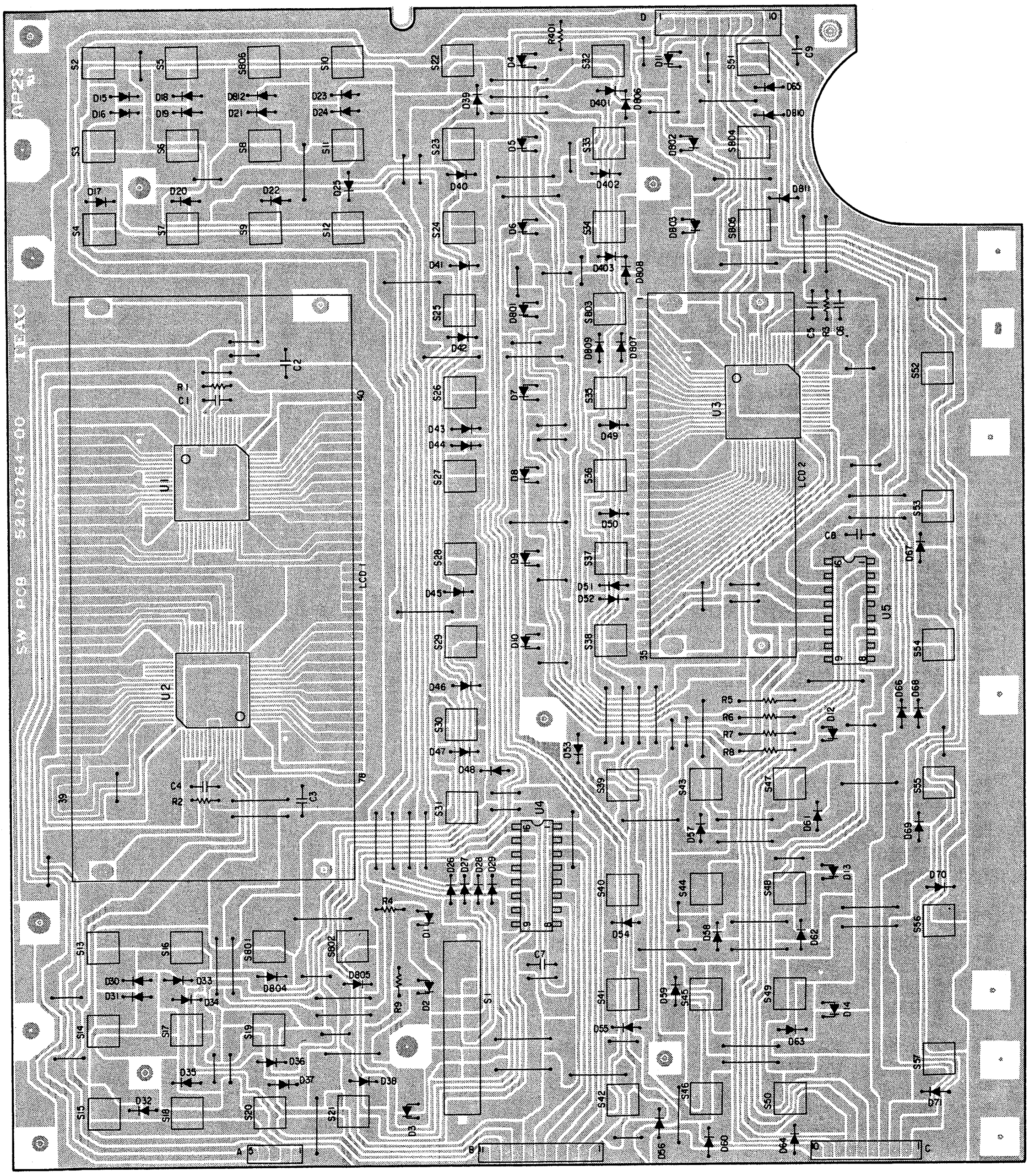
[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

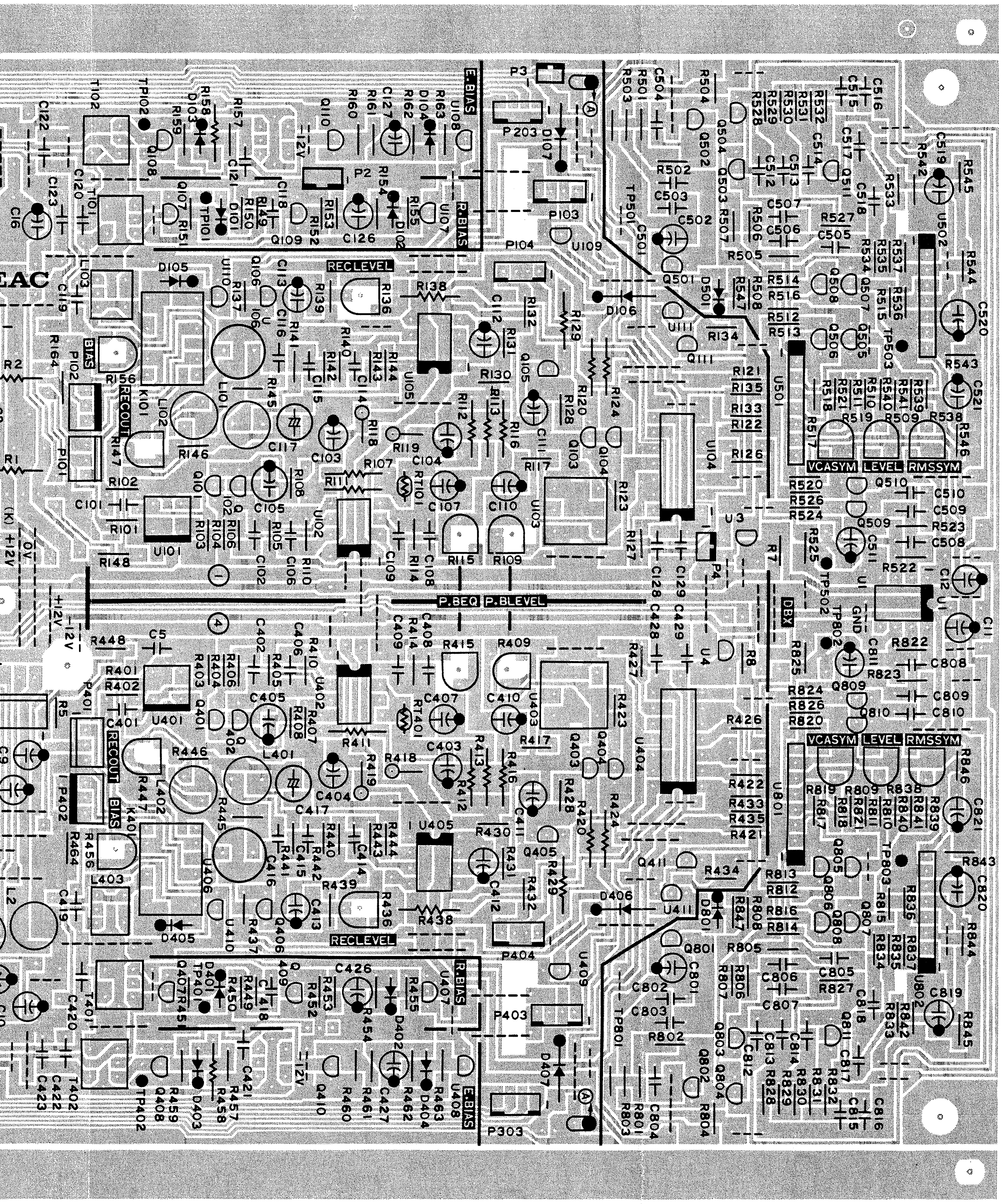
10. PC BOARDS AND PARTS LIST

基板と部品表

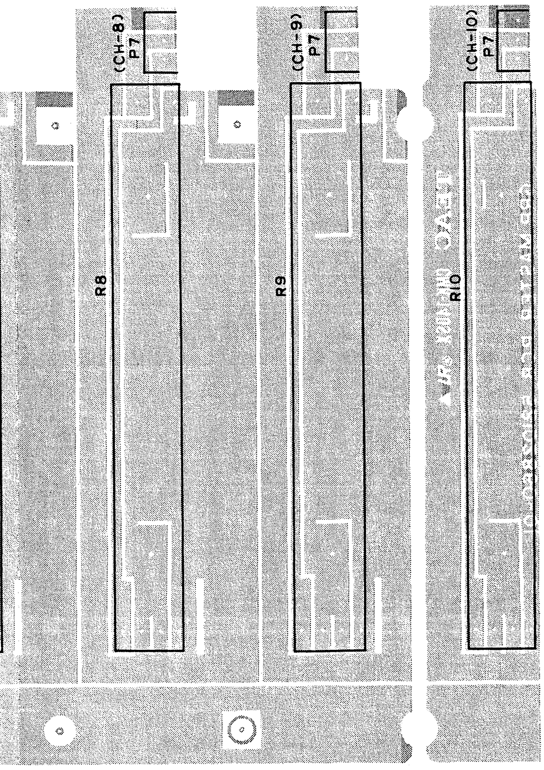
SW PCB ASSY


SW PCB 52102764-00
TEAC
U1
U2
U3
U4
U5
LCD 1
LCD 2
S1
C1
C2
C3
C4
C5
C6
C7
C8
C9
R1
R2
R3
R4
R5
R6
R7
R8
R9
R401

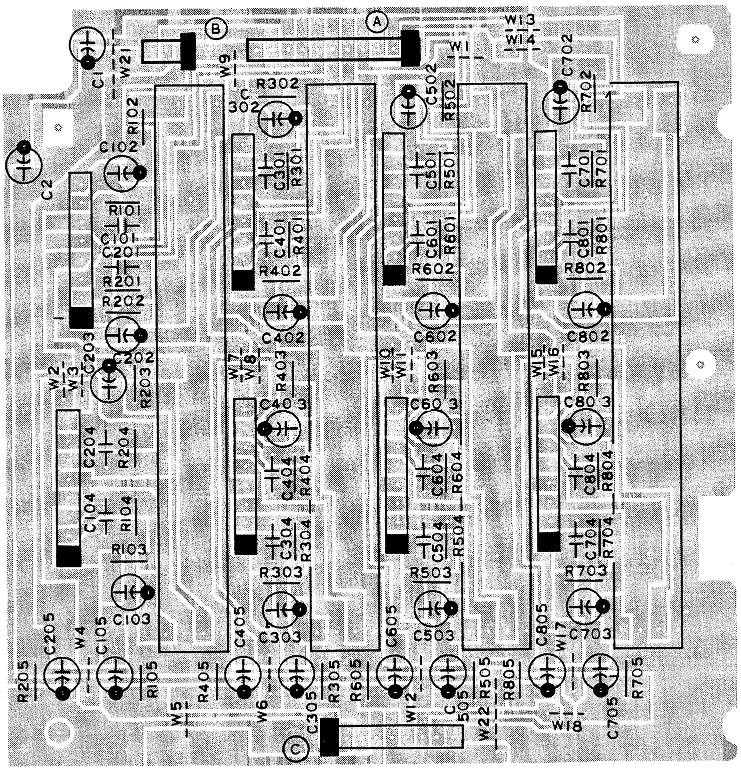
ASSY


E.BIAS
R.BIAS
RECLEVEL
BIAS
RECOUT
P.BEQ
P.BLEVEL
DBX
VCASYM
LEVEL
RMSSYM
EAC
P3
P203
P103
P104
P4
P404
P403
P303
U501
U801
U104
U404
+12V
-12V
0V

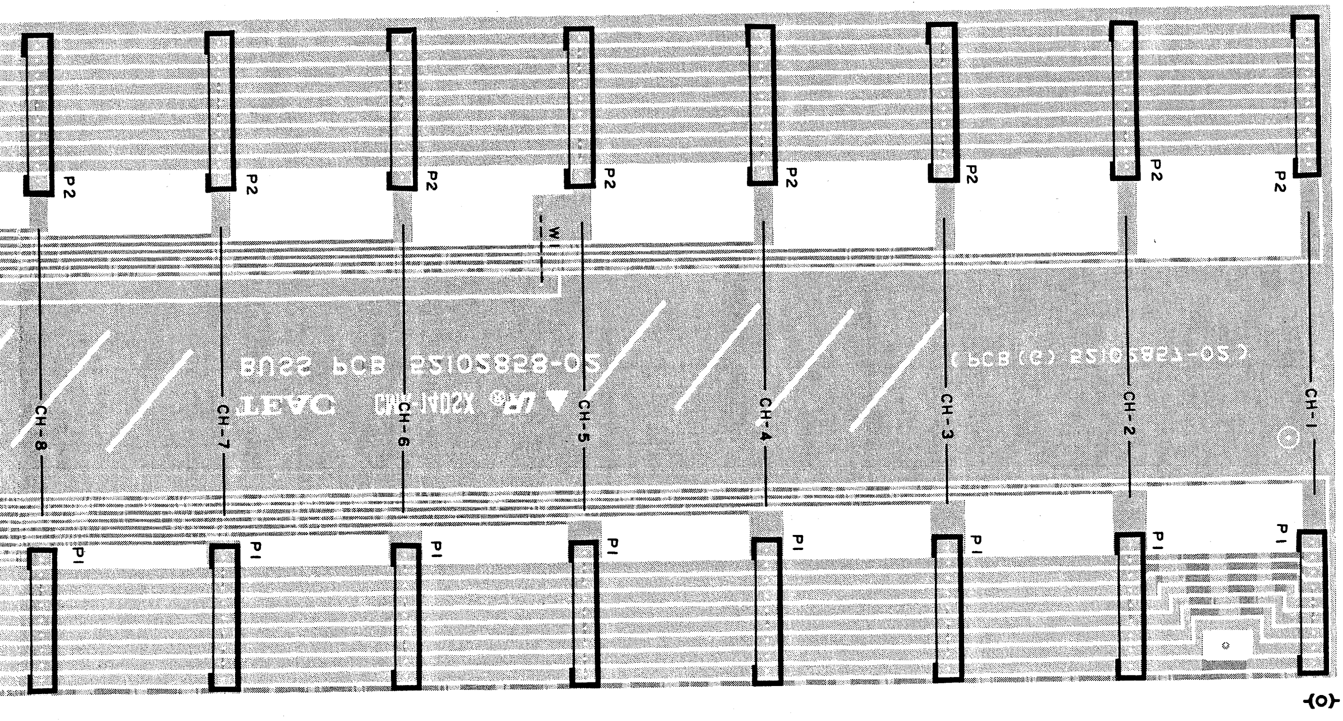
Y


(CH-8)
P7
(CH-9)
P7
(CH-10)
P7
R8
R9
R10

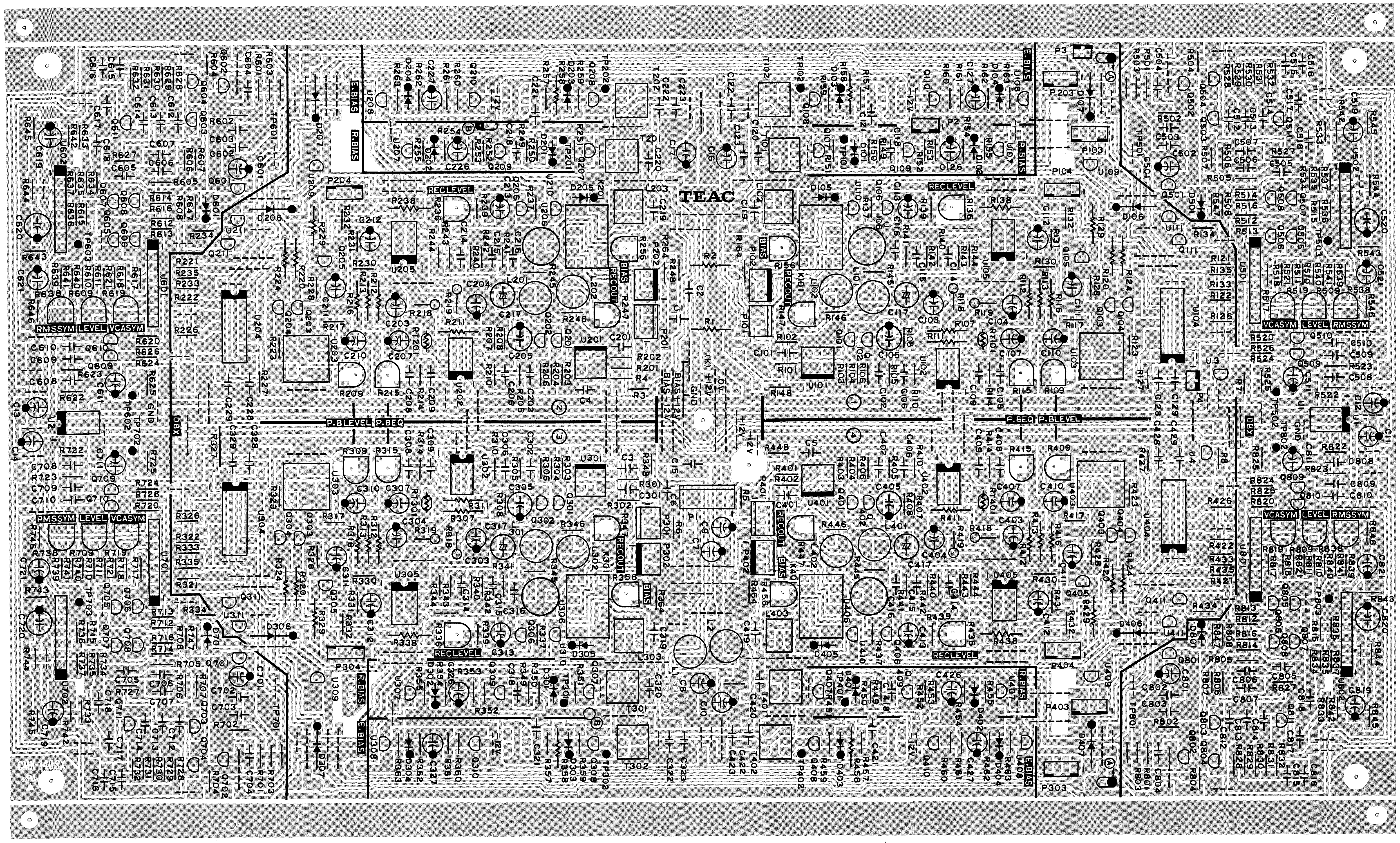
GRP MASTER PCB ASSY


A
B
C
W13
W14
W1
W21
W9
C1
C2
C102
R102
R101
C101
C201
R201
R202
C203
C202
R203
W2
W3
C204
R204
C104
R104
R103
C103
C205
R205
W4
C105
R105
W5
R302
C302
C301
R301
C401
R401
R402
C402
W7
W8
R403
C403
C404
R404
C304
R304
R303
C303
C405
R405
W6
C305
R305
R605
C502
R502
C501
R501
C601
R601
R602
C602
W10
W11
R603
C603
C604
R604
C504
R504
R503
C503
C605
W12
C505
R505
R805
W22
C702
R702
C701
R701
C801
R801
R802
C802
W15
W16
R803
C803
C804
R804
C704
R704
R703
C703
C805
W17
W18
C705
R705

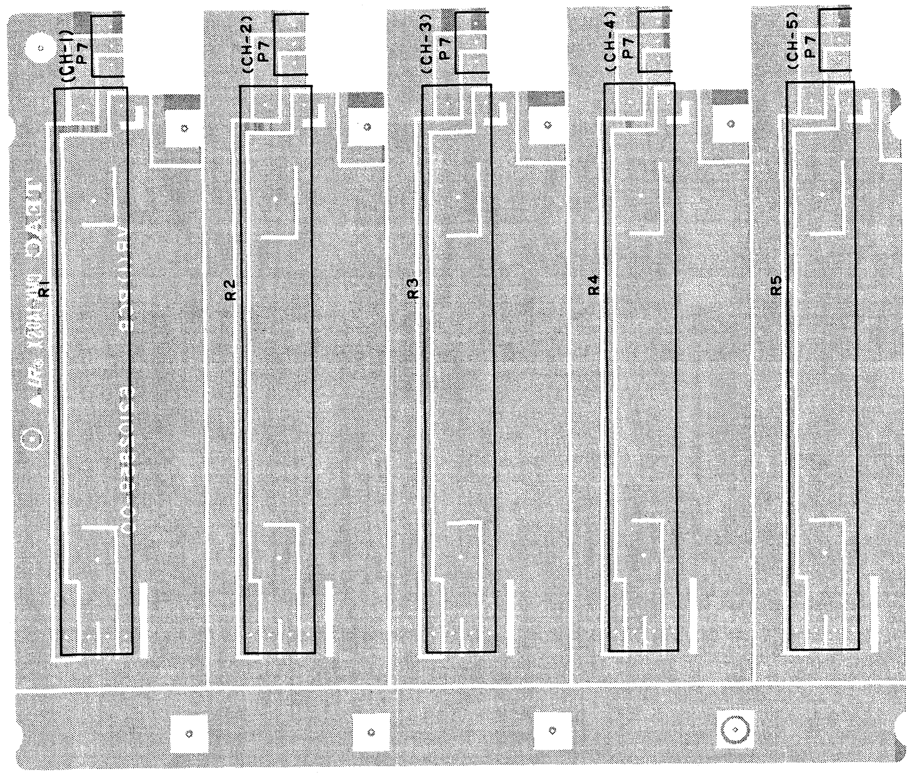
BUSS PCB ASSY


P2
P2
P2
P2
P2
P2
P2
P2
W1
BUSS PCB 52102828-02
TEAC
(PCB(G) 52102827-02)
CH-8
CH-7
CH-6
CH-5
CH-4
CH-3
CH-2
CH-1
P1
P1
P1
P1
P1
P1
P1
P1
(o)

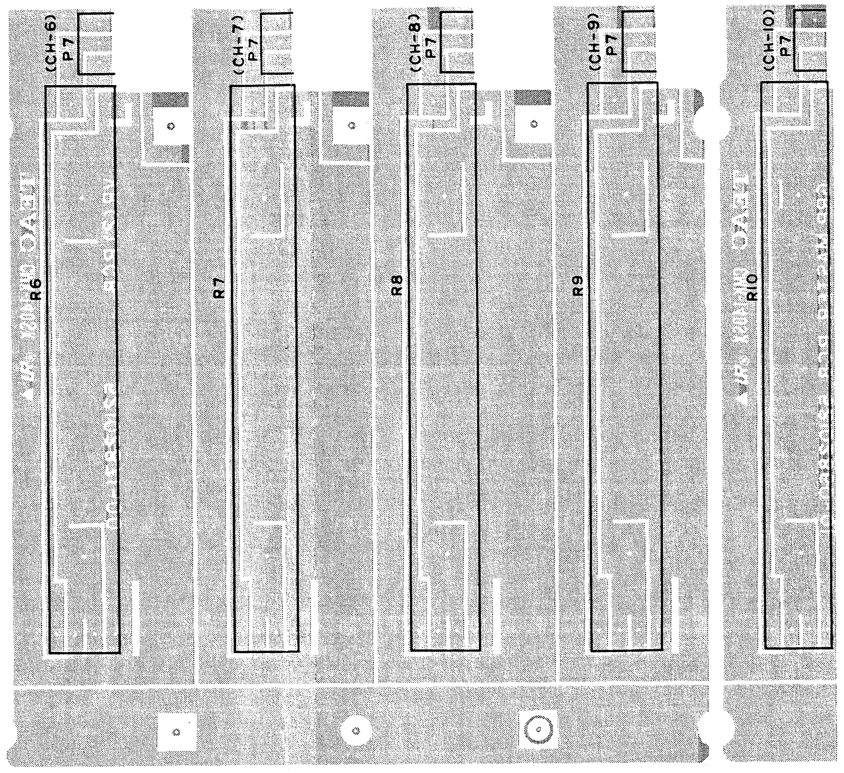
R/P PCB ASSY


TEAC
CMK-140SX
E.BIAS
R.BIAS
REC LEVEL
RMSSYM
LEVEL
VCASYM
DBX
P.BLEVEL
P.BEQ
P.BEQ
P.BLEVEL
BIAS
RECOUT
BIAS +12V
BIAS -12V
GND
+12V
0V
-12V

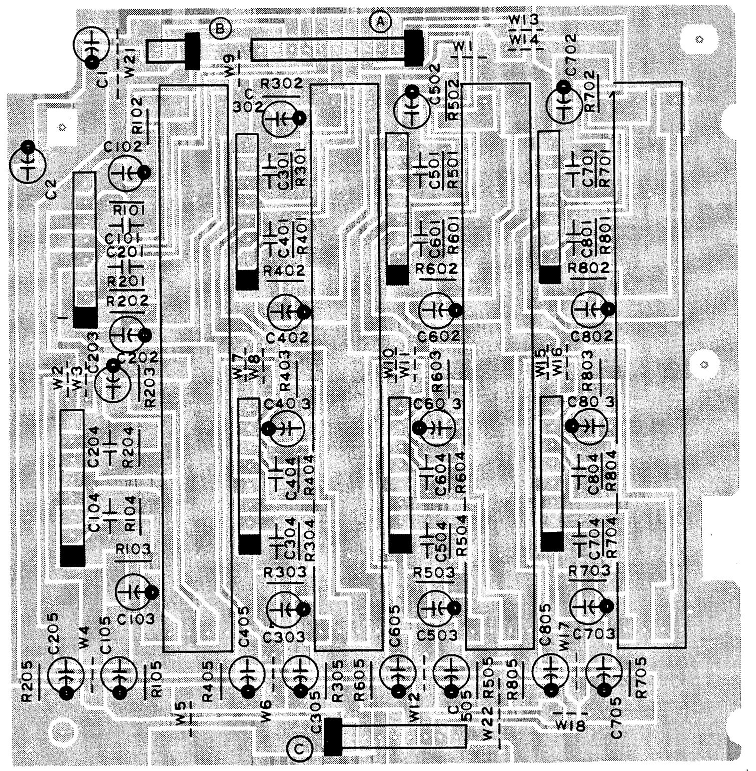
VR (1) PCB ASSY


(CH-1) P7
(CH-2) P7
(CH-3) P7
(CH-4) P7
(CH-5) P7
R1
R2
R3
R4
R5

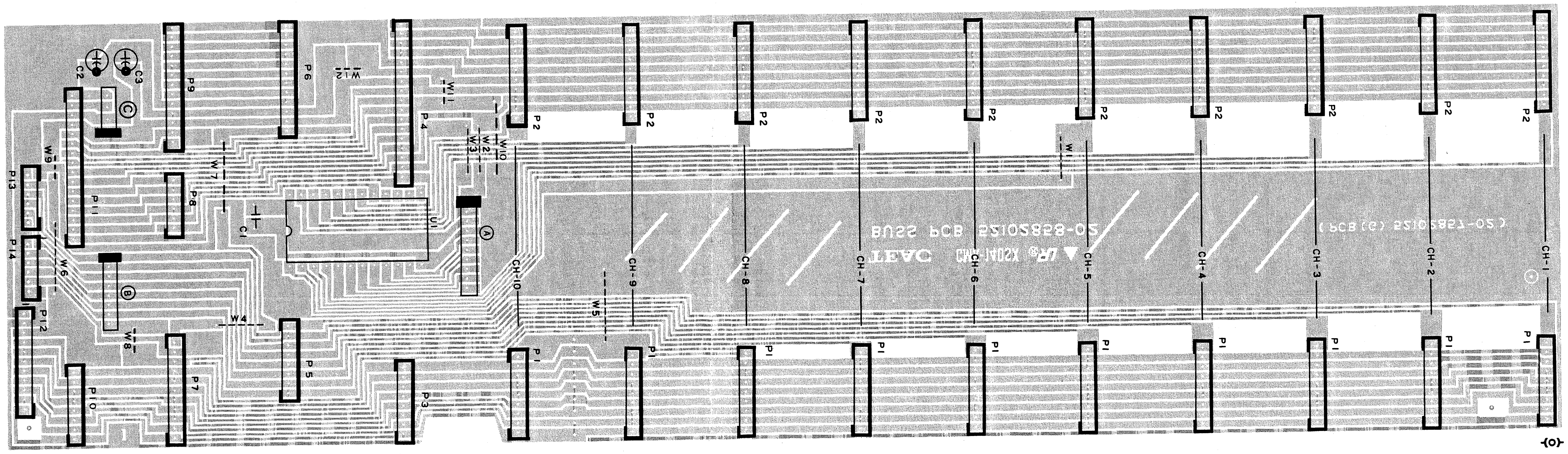
VR (2) PCB ASSY


(CH-6) P7
(CH-7) P7
(CH-8) P7
(CH-9) P7
(CH-10) P7
R6
R7
R8
R9
R10

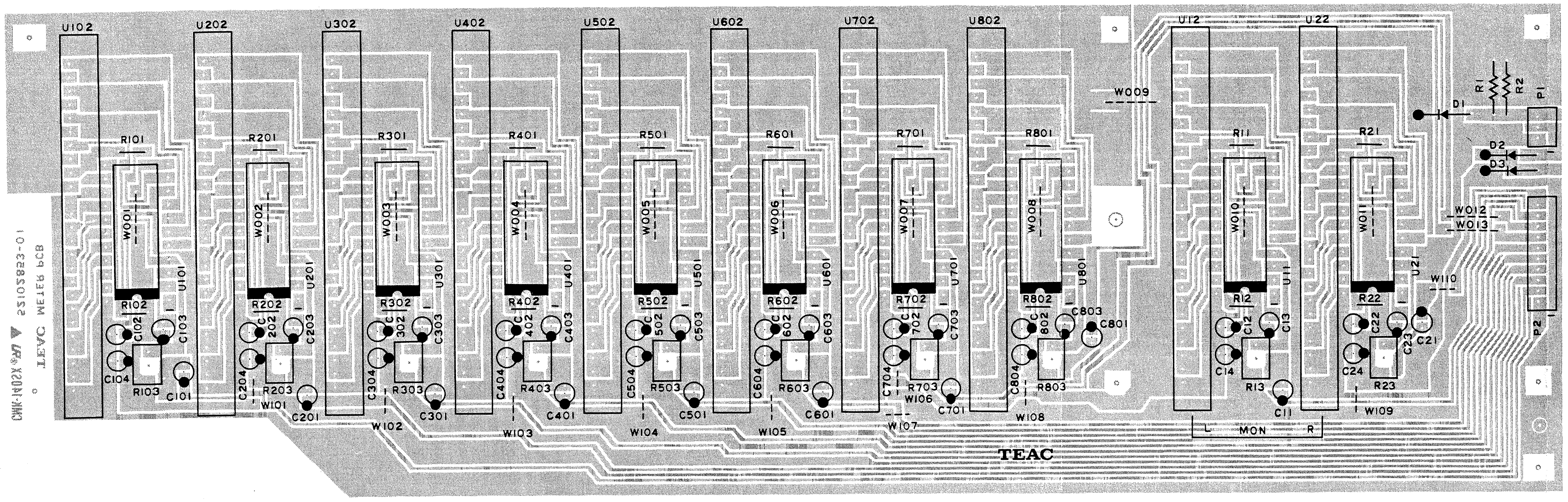
GRP MASTER PCB ASSY


Ⓐ
Ⓑ
Ⓒ
C1
C2
W13
W14
W1
W21
W9
C102
R102
R101
C101
C201
R201
R202
C203
R203
C202
W2
W3
C204
R204
C104
R104
R103
C103
C205
C105
W4
R205
R105
W5
R302
C302
C301
R301
C401
R401
R402
C402
R403
W7
W8
C403
C404
R404
C304
R304
R303
C303
C405
R405
W6
C305
R305
C502
R502
C501
R501
C601
R601
R602
C602
W10
W11
R603
C603
C604
R604
C504
R504
R503
C503
C605
R605
W12
C505
R505
W22
C702
R702
C701
R701
C801
R801
R802
C802
W15
W16
R803
C803
C804
R804
C704
R704
R703
C703
C805
R805
W17
W18
C705
R705

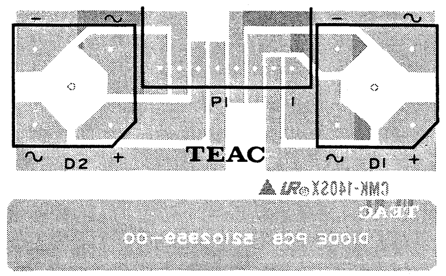
BUSS PCB ASSY


C2
C3
Ⓒ
Ⓑ
Ⓐ
P9
P6
P4
P8
P11
P13
P14
P12
P10
P7
P5
P3
W1
W2
W3
W4
W5
W6
W7
W8
W9
W10
W11
C1
U1
P2
P1
CH-10
CH-9
CH-8
CH-7
CH-6
CH-5
CH-4
CH-3
CH-2
CH-1
BUSS PCB 52102858-02
TEAC
(PCB(3) 52102857-02)

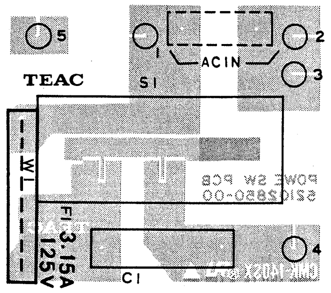
METER PCB ASSY


U102
U202
U302
U402
U502
U602
U702
U802
U12
U22
R101
R201
R301
R401
R501
R601
R701
R801
R11
R21
W001
W002
W003
W004
W005
W006
W007
W008
W010
W011
W009
W012
W013
W101
W102
W103
W104
W105
W106
W107
W108
W109
W110
U101
U201
U301
U401
U501
U601
U701
U801
U11
U21
C101
C102
C103
C104
R102
R103
MON
L
R
D1
D2
D3
R1
R2
P1
P2
TEAC
CMK-1402X
52102883-01
TEAC METER PCB

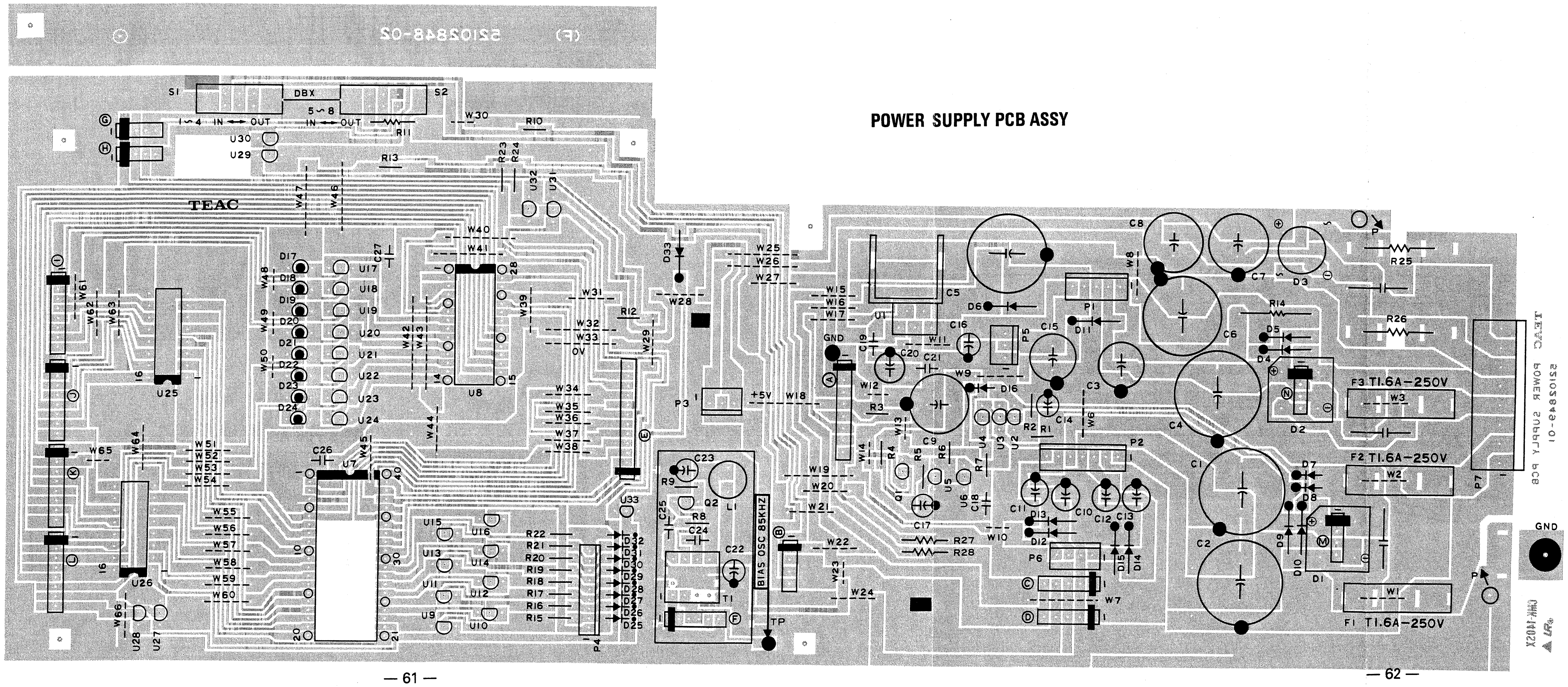
DIODE PCB ASSY


D2
D1
P1
TEAC
CMK-1405X
~
+

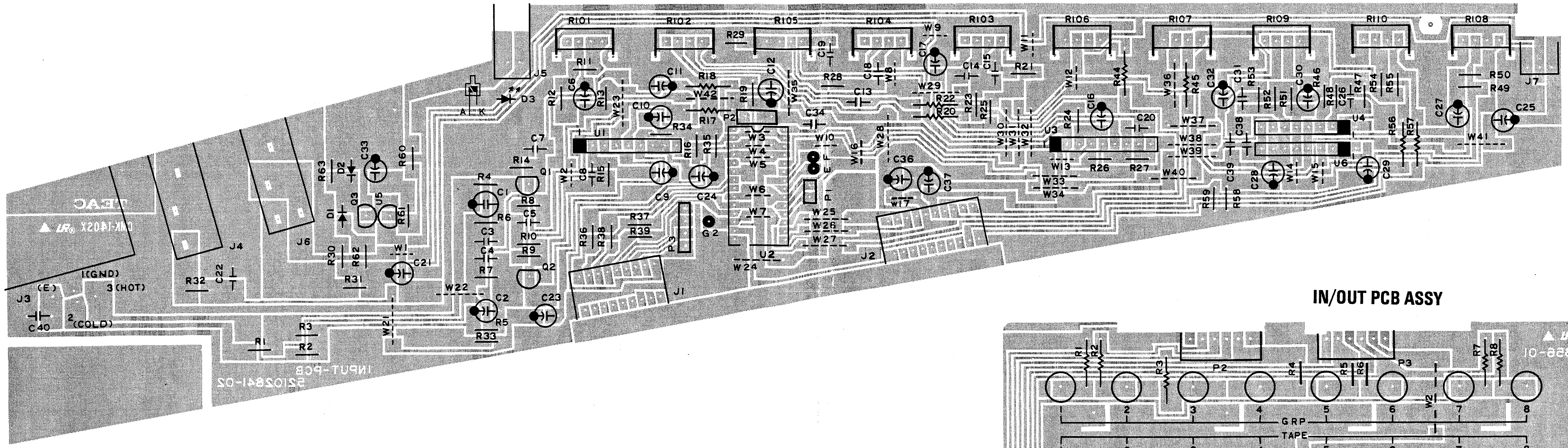
POWER SW PCB ASSY


5
2
3
4
S1
AC IN
TEAC
W1
F1 3.15A 125V
C1

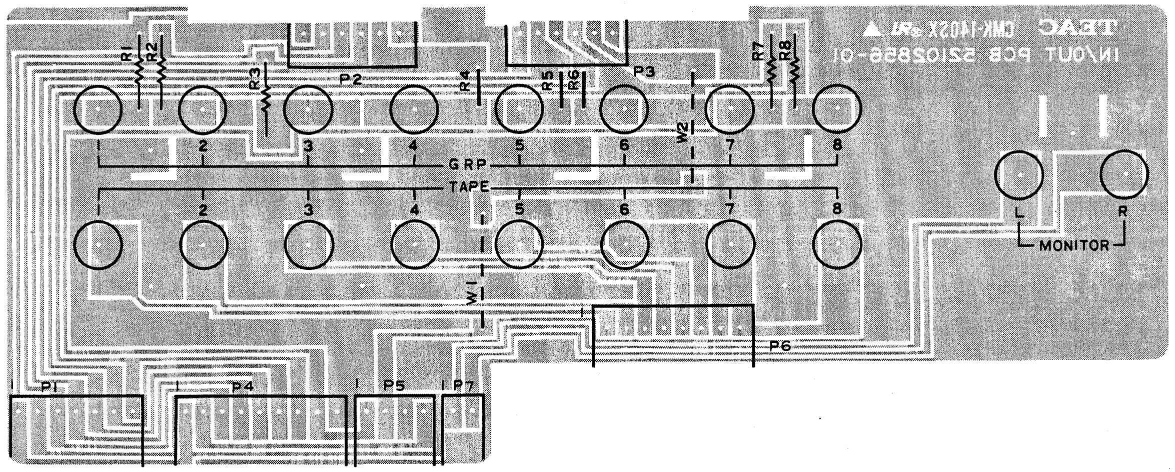
POWER SUPPLY PCB ASSY


52102848-02
S1
S2
DBX
1~4 IN ← → OUT
5~8 IN ← → OUT
W30
R10
R11
R13
R23
R24
U29
U30
U31
U32
TEAC
W40
W41
W46
W47
W48
W49
W50
U8
U17
U18
U19
U20
U21
U22
U23
U24
U25
U26
U27
U28
U7
D17
D18
D19
D20
D21
D22
D23
D24
D25
D33
W25
W26
W27
W28
W29
W31
W32
W33
W34
W35
W36
W37
W38
W51
W52
W53
W54
W55
W56
W57
W58
W59
W60
W61
W62
W63
W64
W65
W66
C26
C27
R12
R15
R16
R17
R18
R19
R20
R21
R22
P3
P4
+5V
W18
BIAS OSC 85KHZ
T1
L1
Q2
R8
R9
C22
C23
C24
C25
TP
GND
W12
W13
W14
W15
W16
W17
W19
W20
W21
W22
W23
W24
R27
R28
W10
C5
C8
C7
C6
C4
C3
C1
C2
D3
D6
D11
R25
R14
R26
D5
D4
D2
D1
D7
D8
D9
D10
F3 T1.6A-250V
F2 T1.6A-250V
F1 T1.6A-250V
W1
W2
W3
W7
P5
P6
P7
TEAC
52102849-01 POWER SUPPLY PCB
CMK-1405X

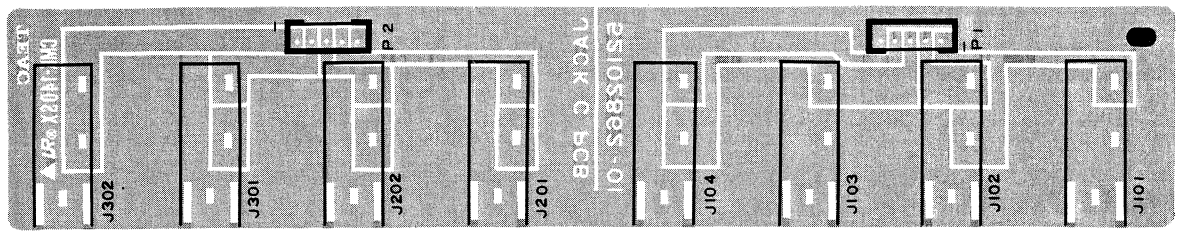
INPUT PCB ASSY


TEAC
CMK-140SX
INPUT-PCB
5210284l-02
J1
J2
J3
J4
J5
J6
J7
U1
U2
U3
U4
U5
1(GND)
2(COLD)
3(HOT)
(E)
R101
R102
R105
R104
R103
R106
R107
R109
R110
R108

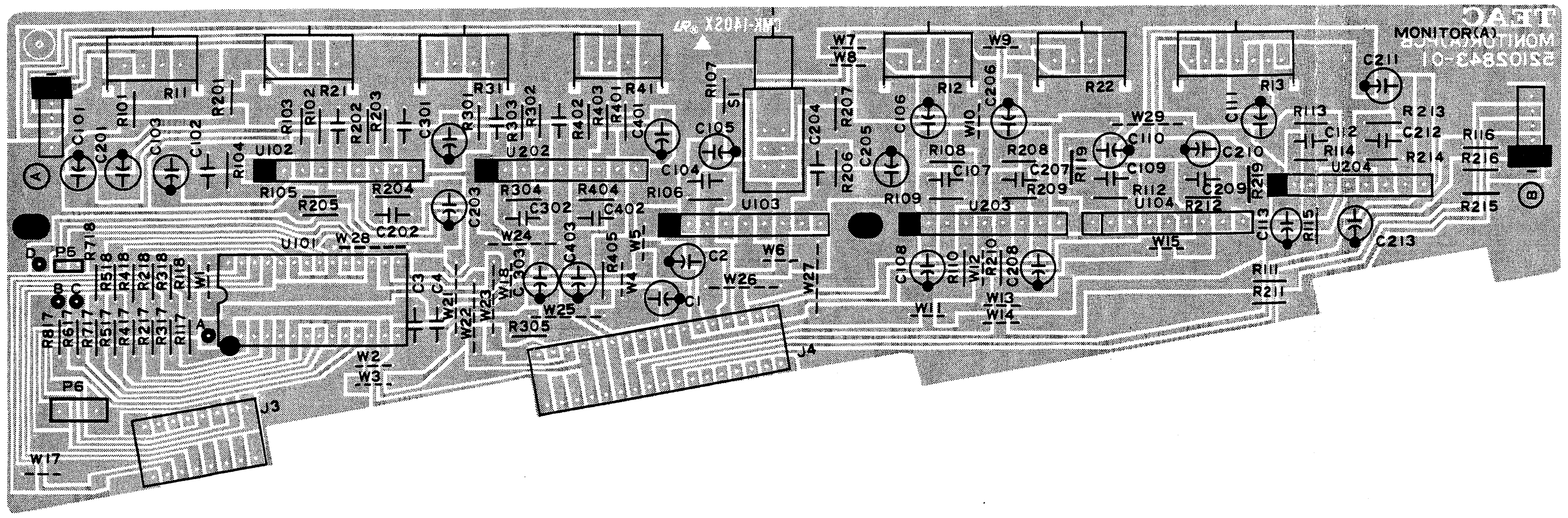
IN/OUT PCB ASSY


TEAC
CMK-140SX
IN/OUT PCB 5210285б-01
GRP
TAPE
MONITOR
L
R
P1
P2
P3
P4
P5
P6
P7
W1
W2
1
2
3
4
5
6
7
8

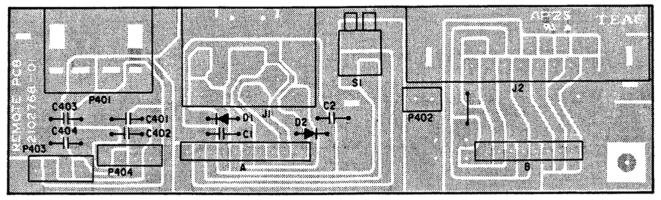
JACK—C PCB ASSY


TEAC
CMK-140SX
JACK C PCB
5210286-01
P1
P2
J302
J301
J202
J201
J104
J103
J102
J101

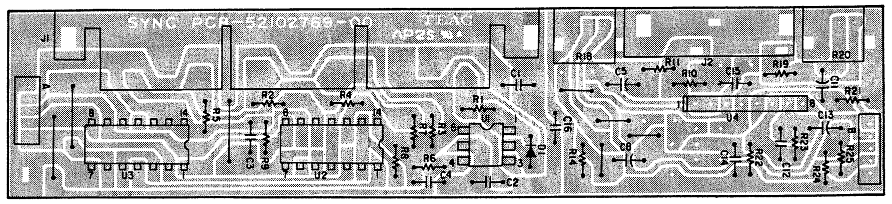
MONITOR(A) PCB ASSY


TEAC
CMK-140SX
MONITOR(A)
MONITOR(A) PCB
5210284З-01
A
B
J3
J4
P5
P6
U101
U102
U103
U104
U203
U204
S1

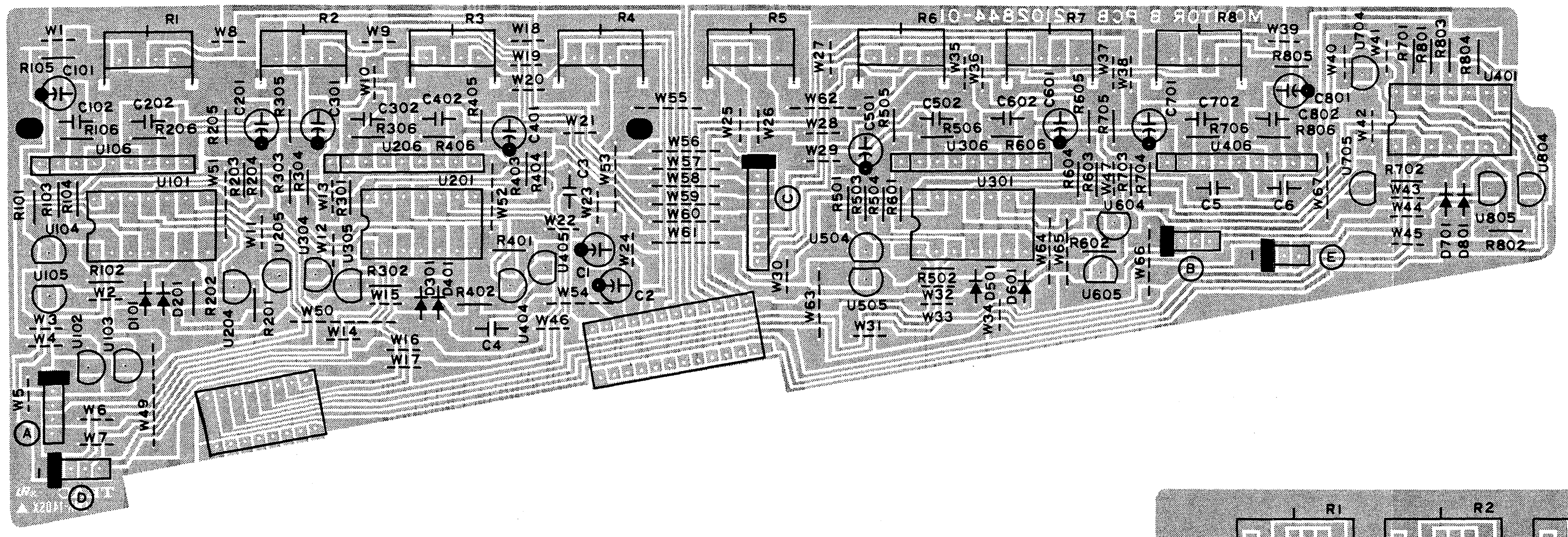
REMOTE PCB ASSY


REMOTE PCB
P401
P402
P403
P404
J1
J2
S1
A
B

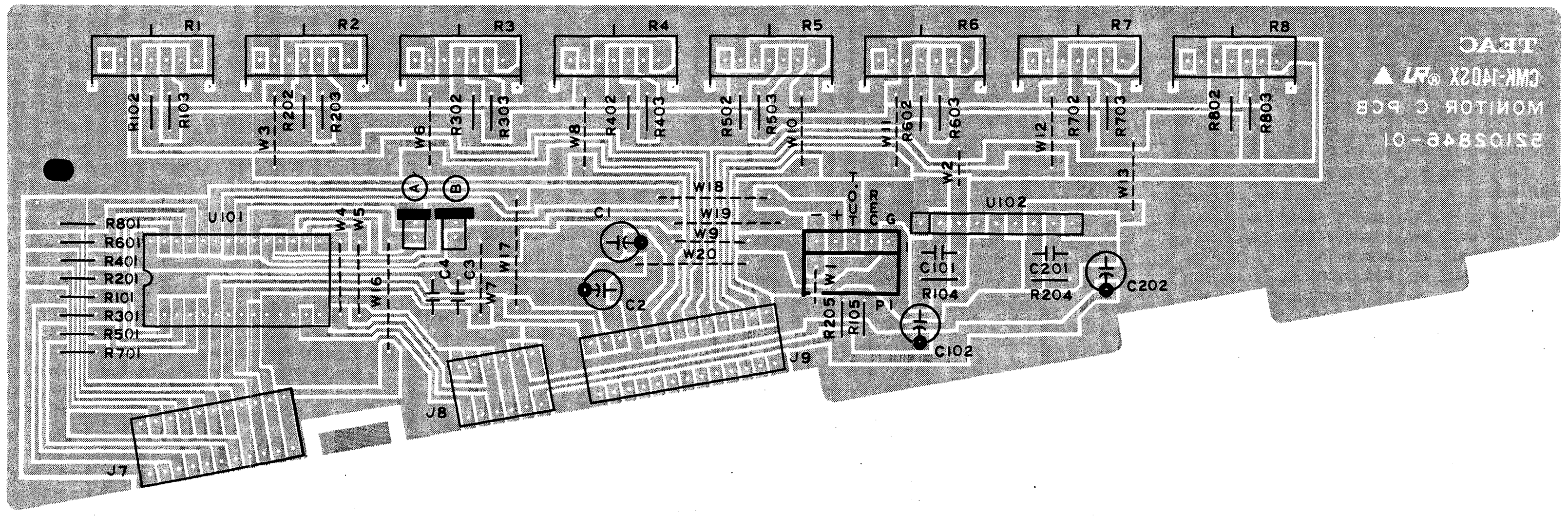
SYNC PCB ASSY


SYNC PCB 5210276-01
TEAC
J1
U1
U2
U3
U4

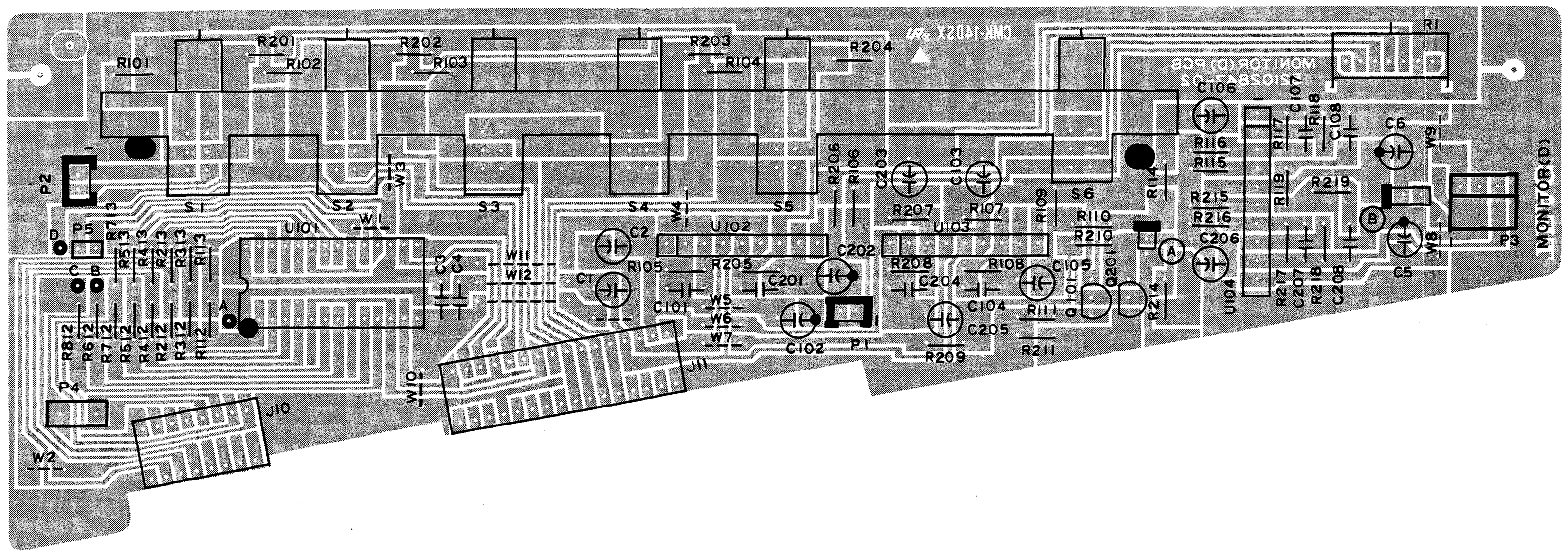
MONITOR(B) PCB ASSY



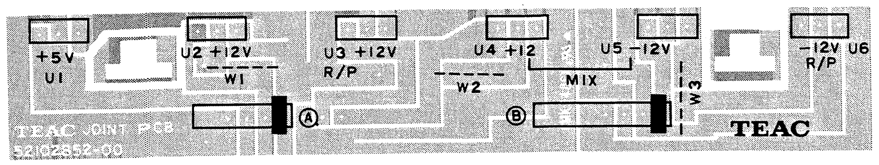
MONITOR(C) PCB ASSY


TEAC
CMK-140SX
MONITOR C PCB
5210284 6-01

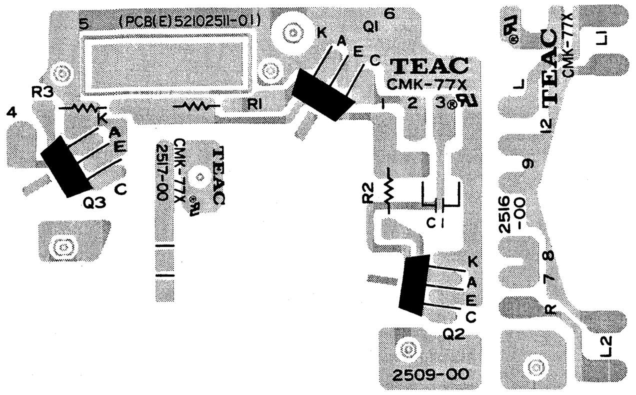
MONITOR(D) PCB ASSY


CMK-140SX
MONITOR (D)

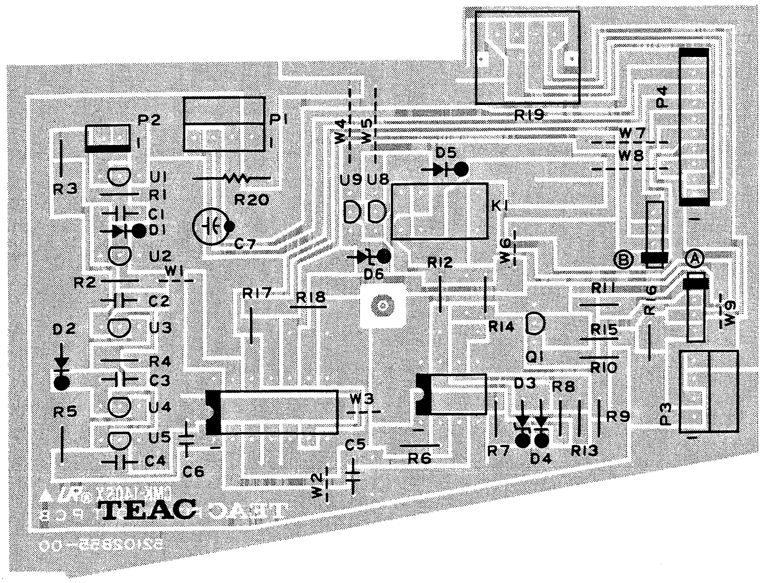
JOINT PCB ASSY


+5V
U1
U2 +12V
W1
U3 +12V
R/P
W2
U4 +12
MIX
U5 -12V
W3
-12V U6
R/P
Ⓐ
Ⓑ
TEAC
TEAC JOINT PCB
52102852-00

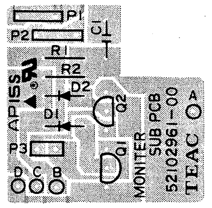
SENSOR PCB Assy


5 (PCB(E)52102511-01)
6
Q1
K A E C
TEAC
CMK-77X
2 3
R3
R1
4
Q3
TEAC
CMK-77X
2517-00
R2
C1
2516-00
L1
L2
K A E C
Q2
2509-00

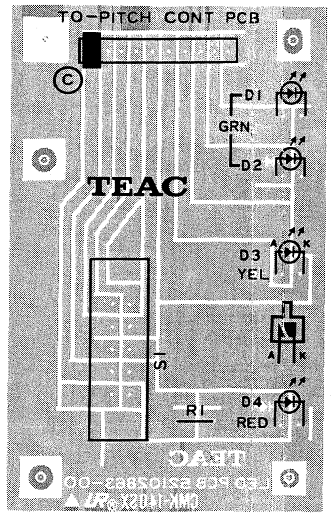
PITCH CONT PCB ASSY


P2
P1
R3
U1
R1
C1
D1
R20
C7
U2
W1
R2
C2
D2
U3
R4
C3
R5
U4
U5
C4
C6
W4
W5
D5
U9 U8
K1
D6
R12
W6
W7
W8
P4
R19
R17
R18
R11
R16
R14
R15
Q1
R10
D3
R8
R9
D4
R7
R13
R6
C5
W2
W3
P3
W9
Ⓐ
Ⓑ
TEAC
52102855-00

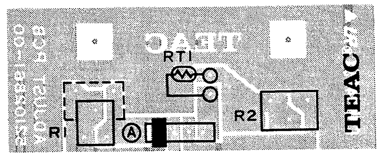
MONITOR SUB PCB ASSY


P1
P2
C1
R1
R2
D2
D1
Q2
Q1
P3
D C B
AP155
MONITER SUB PCB
52102961-00
TEAC

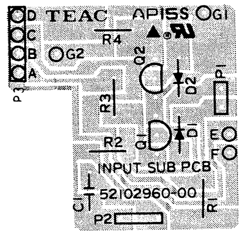
LED PCB ASSY


TO-PITCH CONT PCB
Ⓒ
D1
GRN
D2
TEAC
D3
YEL
D4
RED
S1
R1
TEAC
LED PCB 52102863-00

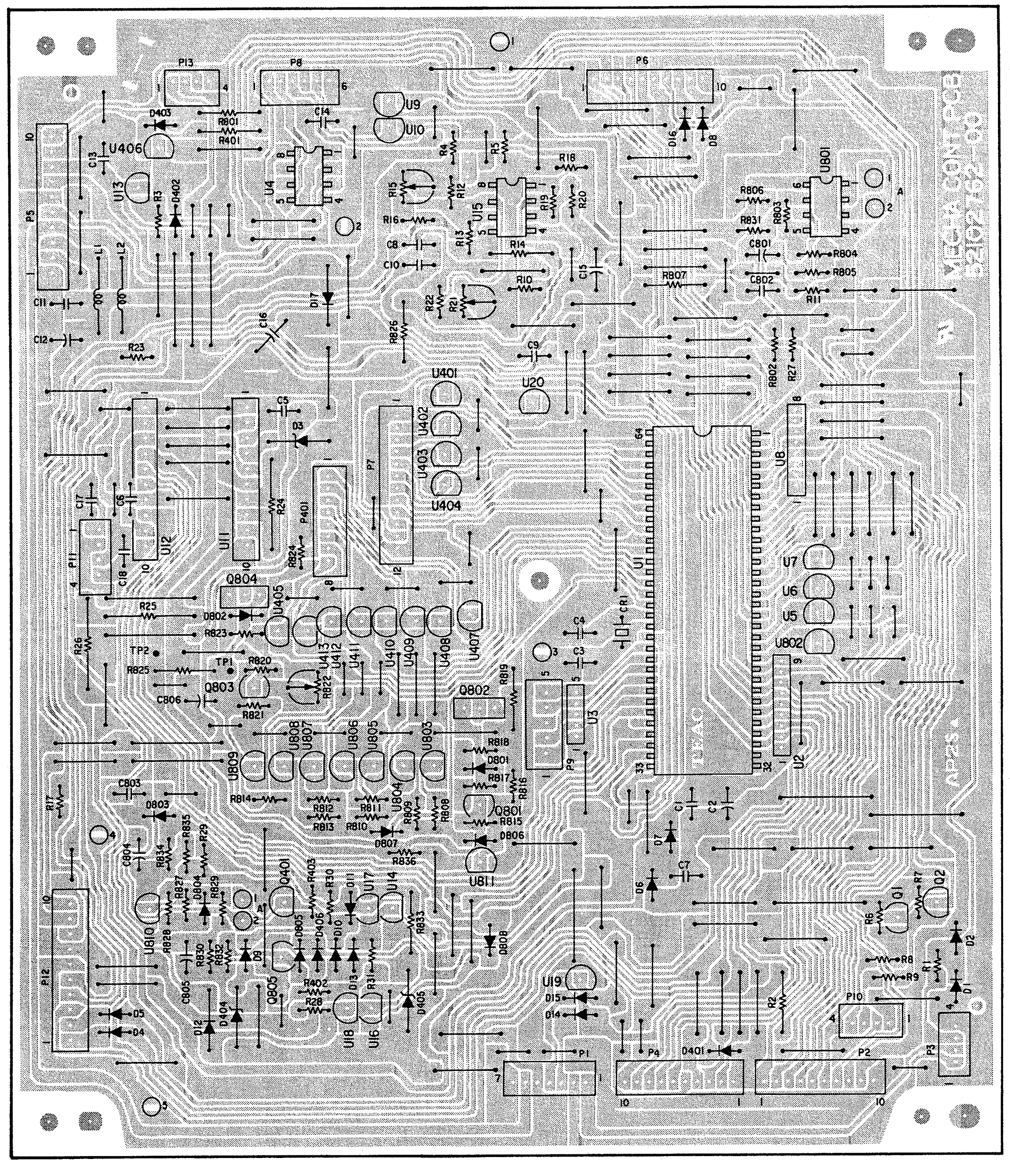
ADJUST PCB ASSY


TEAC
RT1
R1
Ⓐ
R2
TEAC

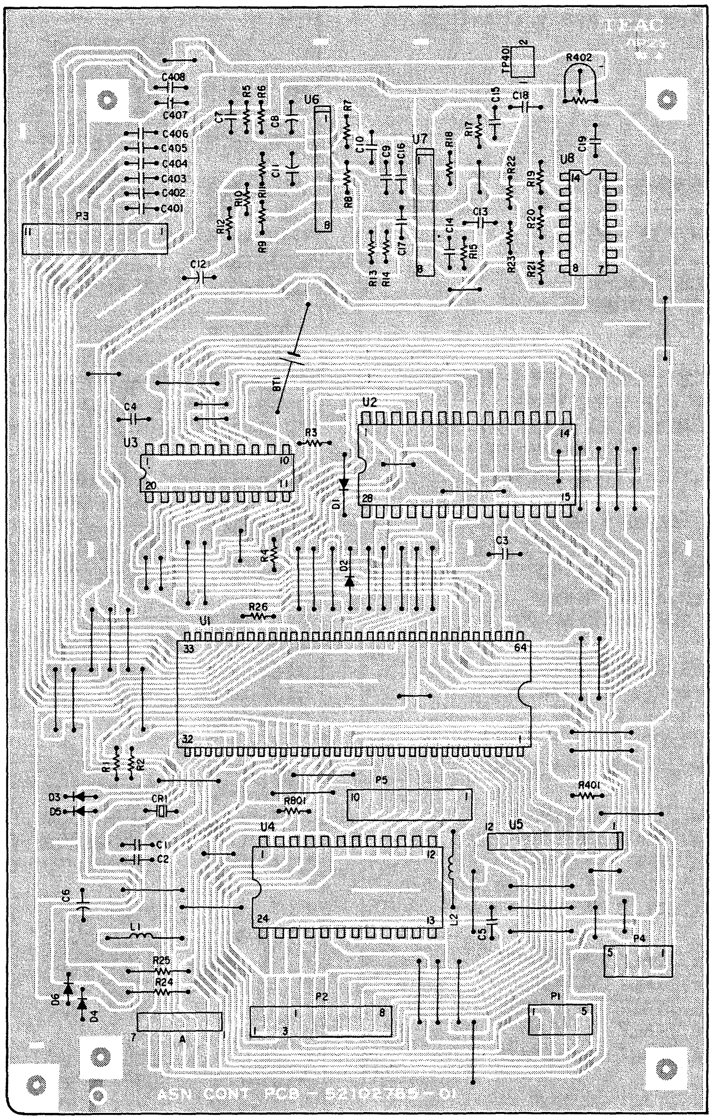
INPUT SUB PCB ASSY


D
C
B
A
TEAC
AP155
G1
R4
G2
Q2
D2
P1
R3
Q1
D1
E
F
R2
INPUT SUB PCB
52102960-00
C1
P2
R1
P3

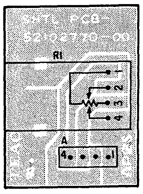
MECHA CONT PCB ASSY


P13
P8
P6
P5
U406
U13
U4
U9
U10
U15
U801
U401
U402
U403
U404
U20
U12
U11
U1
U8
U7
U6
U5
U802
U2
U3
U405
U807
U808
U809
U806
U805
U803
U804
U810
U811
U19
U18
U16
U17
U14
P11
P12
P10
P2
P1
P9
MECHA CONT PCB
AP155

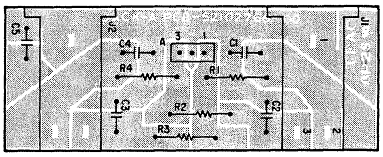
ASN CONT PCB ASSY


TEAC
TP401
R402
C408
C407
C406
C405
C404
C403
C402
C401
P3
U6
U7
U8
C12
BT1
C4
U2
U3
R3
D1
D2
R4
C3
R26
U1
R1
R2
D3
D5
CR1
R801
P5
R401
U5
U4
C1
C2
C6
L1
L2
C5
P4
R25
R24
D6
D4
A
P2
P1
ASN CONT PCB - 52102785-01

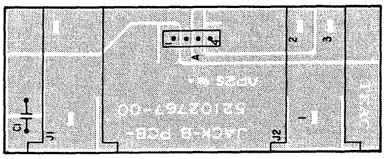
SHTL PCB ASSY


SHTL PCB-
52102770-00
R1
A

JACK — A PCB ASSY


C5
J2
C4
A
C1
R4
R1
C3
R2
C2
R3
J1

JACK — B PCB ASSY


A
AP25
52102767-00
JACK-B PCB-
C1
J1
J2
TEAC

NOTE:

As regards the resistors and capacitors, refer to the circuit diagrams and the PCB ass'y drawings included in this brochure.

SW PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200276410	SW PCB ASSY
	*5210276400	SW PCB
	5801261700	LCD SPACER
	5801261600	LCD SPACER L
	5801302100	CUSHION
	5787033000	PCB SUPPORT KGLS-10R
	5801301900	SW PCB HOLD PLATE
	5783693006	SCREW,BIND M3X6 BLK NI
C 1	12907098	C, CC 50V 680PF 5%
C 2- 3	12907113	C, CC 25V 22000PF Z
C 4- 5	12907098	C, CC 50V 680PF 5%
C 6- 9	12907113	C, CC 25V 22000PF Z
D 1	5225021700	LED,SLP477B-50
D 2- 14	5225021500	LED,SLP177B-50
D 15- 71	5224015020	DIODE,1SS133T-77
D801-803	5225021500	LED,SLP177B-50
D804-812	5224015020	DIODE,1SS133T-77
LCD1	5347013300	LCD ASSIGN(2)
LCD2	5347012900	LCD COUNTER
S 1	5300916600	SW.,SLIDE 2-4 SSSU
S 2- 16	5302108600	SW.,TACT SKHVBE
S 17	5302103200	SW.,TACT KHH10910
S 18	5302108600	SW.,TACT SKHVBE
S 19- 21	5302103200	SW.,TACT KHH10910
S 22- 24	5302108600	SW.,TACT SKHVBE
S 25	5302103200	SW.,TACT KHH10910
S 26- 29	5302108600	SW.,TACT SKHVBE
S 30- 31	5302103200	SW.,TACT KHH10910
S 32	5302108600	SW.,TACT SKHVBE
S 33- 37	5302103200	SW.,TACT KHH10910
S 38	5302108600	SW.,TACT SKHVBE
S 39	5302103200	SW.,TACT KHH10910
S 40- 44	5302108600	SW.,TACT SKHVBE
S 45	5302103200	SW.,TACT KHH10910
S 46- 57	5302108600	SW.,TACT SKHVBE
S801-803	5302108600	SW.,TACT SKHVBE
S804-805	5302103200	SW.,TACT KHH10910
S806	5302108600	SW.,TACT SKHVBE
U 1- 3	5220075000	IC.,LC7582A
U 4- 5	5220055900	IC.,TC74HC138P

R/P PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200285400	R/P PCB ASSY
	*5210285400	R/P PCB
C119-419	5263105420	C.,POLY. 100PF/100V J VT
C123-423	5263107020	C.,POLY.
C502-802	5263167923	C.,METAL 0.1MF 50V J VT
C503-803	5263167923	C.,METAL 0.1MF 50V J VT
C504-804	5172204000	C.,CERAMIC 22PF/50V T
C505-805	5263169523	C.,METAL 0.3MF/50V J VT
C506-806	5263106120	C.,POLY. 200PF/100V J
C507-807	5263166723	C.,METAL 0.010UF 50V J VT
C508-808	5263105420	C.,POLY. 100PF/100V J VT
C509-809	5263105420	C.,POLY. 100PF/100V J VT
C510-810	5263166723	C.,METAL 0.010UF 50V J VT
C512-712	5263167923	C.,METAL 0.1MF 50V J VT
C513-813	5263167923	C.,METAL 0.1MF 50V J VT
C516-816	5263106620	C.,POLY. 330PF/100 J VT
C517-817	5263167923	C.,METAL 0.1MF 50V J VT
C518-818	5263166723	C.,METAL 0.010UF 50V J VT
C812	5263167923	C.,METAL 0.1MF 50V J VT
D101-401	5224015020	DIODE,1SS133T-77
D102-402	5224015020	DIODE,1SS133T-77
D103-403	5224015020	DIODE,1SS133T-77
D104-404	5224015020	DIODE,1SS133T-77
D105-405	5224015020	DIODE,1SS133T-77
D106-406	5224012920	DIODE,1S2473
D107-407	5224012920	DIODE,1S2473
D501-801	5224015020	DIODE,1SS133T-77
K101-401	5290013800	RELAY,DF2-DC12V
L 1 L2	5286006700	COIL,CHOKE 1.2MH
L101-401	5286010200	COIL,CHOKE 36MH
L102-402	5286008700	COIL,CHOKE 8.2MH
L103-403	5286037600	COIL 20D6(H=9.7)
P 1	5336126500	PLUG,CONNECTOR 5P
P 2	5336249300	PLUG,CONNECT.WHT
P 3	5336249200	PLUG,CONNECT.WHT
P 4	5336251200	PLUG,CONN.B02B-PH-K-R RED
P101-401	5336126300	PLUG,CONNECTOR 3P
P102-402	5336137300	PLUG,CONN.8263-0312 BLK
P103 P303	5336249400	PLUG,CONNECT.WHT
P104-404	5336255400	PLUG,CONN.B04B-PH-K-K BLK
P203 P403	5336251400	PLUG,CONNECT.RED
Q101-401	5232009500	FET,2SK170BL
Q102-402	5232009500	FET,2SK170BL
Q103-403	5231762020	TRANSISTOR 2SD1450S/T 0.3
Q104-404	5231762020	TRANSISTOR 2SD1450S/T 0.3
Q105-405	5231762020	TRANSISTOR 2SD1450S/T 0.3
Q106-406	5231762020	TRANSISTOR 2SD1450S/T 0.3
Q107-407	5230782200	TRANSISTOR 2SC2002L
Q108-408	5230782200	TRANSISTOR 2SC2002L
Q109-409	5230775020	TR 2SC2878-B TAPING
Q110-410	5230775020	TR 2SC2878-B TAPING
Q111-411	5230012920	TRANSISTOR 2SA1015GR 0.4 80

Parts marked with *require longer delivery time.

R/P PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
Q501-801	5232008420	FET.,2SK381D PORTA-2
Q502-802	5230779520	TRANSISTOR 2SC1815GR 0.4 80
Q503-803	5230775020	TR 2SC2878-B TAPING
Q504-804	5230775020	TR 2SC2878-B TAPING
Q505-805	5230775020	TR 2SC2878-B TAPING
Q506-806	5230775020	TR 2SC2878-B TAPING
Q507-807	5230775020	TR 2SC2878-B TAPING
Q508-808	5230775020	TR 2SC2878-B TAPING
Q509	5230775020	TR 2SC2878-B TAPING
Q510-710	5230775020	TR 2SC2878-B TAPING
Q511-811	5230779520	TRANSISTOR 2SC1815GR 0.4 80
Q609-809	5230775020	TR 2SC2878-B TAPING
Q810	5230775020	TR 2SC2878-B TAPING
R109-409	5280021200	R.,TRIMMER 6.8KB
R115-415	5280020900	R.,TRIMMER 2.2KB
R118-418	5183578000	R.,INCOMBUSTIBLE 1/4W 100
R119-419	5183578000	R.,INCOMBUSTIBLE 1/4W 100
R136-436	5280021700	R.,TRIMMER,47KB H.
R147-447	5280021100	R.,TRIMMER 4.7KB
R156-456	5280021700	R.,TRIMMER,47KB H.
R509-809	5280021700	R.,TRIMMER,47KB H.
R519-819	5280021700	R.,TRIMMER,47KB H.
R538-838	5280021700	R.,TRIMMER,47KB H.
RT101-401	5143128000	THERMISTOR,S5C-34
T101-401	5320055100	TRANS BIAS 20D6(H=9.7)
T102-402	5320055100	TRANS BIAS 20D6(H=9.7)
TP101-401	5544750000	PIN,CONBINATION
TP102-402	5544750000	PIN,CONBINATION
TP502-802	5544750000	PIN,CONBINATION
TP503-803	5544750000	PIN,CONBINATION
U 1 U 2	5220439600	IC.,UPC4570C
U 3 U 4	5232255720	TRANSISTOR DIGI. DTC124ES
U101-401	5286023100	COIL,TRAP 85KHZ
U102-402	5220439600	IC.,UPC4570C
U103-403	5286037700	FILTER,L-OASS 20D4 20KHZ
U104-404	5220419400	IC.,LC4066B
U105-405	5220439600	IC.,UPC4570C
U106-406	5292805000	FILTER,LOW PASS 85KHZ 238
U107-407	5232254820	TRANSISTOR DIGI. DTA124ES
U108-408	5232254820	TRANSISTOR DIGI. DTA124ES
U109-409	5232255720	TRANSISTOR DIGI. DTC124ES
U110-410	5232255720	TRANSISTOR DIGI. DTC124ES
U111-411	5232254820	TRANSISTOR DIGI. DTA124ES
U501-801	5220414501	IC.,UPC1252H-2,
U502-802	5220414601	IC.,UPC1253H-2,

VR(1)PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200285900	VR(1)PCB ASSY
	*5210285900	VR(1)PCB
P 7	5336210300	CONNECTOR,PLUG 5129-3A
R 1-5	5284015000	VR.,10KA SLIDE RS6011YA9

VR(2)PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200287100	VR(2)PCB ASSY
	*5210287100	VR(2)PCB
P 7	5336210300	CONNECTOR,PLUG 5129-3A
R 6-9	5284015000	VR.,10KA SLIDE RS6011YA9

GRP MASTER PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200286000	GRP MASTER PCB ASSY
	*5210286001	GRP MASTER PCB
C101-801	5172208000	C.,CERAMIC 47PF/50V T
C104-804	5172208000	C.,CERAMIC 47PF/50V T
P 10	5336210300	CONNECTOR,PLUG 5129-3A
R 1- 4	5284015100	VR.,10KAX2 SLIDE
R 10	5284015000	VR.,10KA SLIDE RS6011YA9
U101-801	5220416200	IC.,M5218L,

BUSS PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200285800	BUSS PCB ASSY
	*5210285802	BUSS PCB
	5730018100	CLIP,COATING CP-1S
C 1	5173433000	C.,CERAMIC 0.01UF 50V T
P 1	5336279900	PLUG,CONN.,9P
P 2	5336280000	PLUG,CONN. 10P IL-SDA-P
P 3	5336279800	PLUG,CONN. 8P IL-SDA-P
P 4	5336280700	PLUG,CONN. 17P IL-SDA-P
P 5	5336279800	PLUG,CONN. 8P IL-SDA-P
P 6	5336280200	PLUG,CONN. L-SDA-P
P 7	5336280100	PLUG,CONN. 11P IL-SDA-P
P 8	5336279600	PLUG,CONNECT.6P
P 9	5336280300	PLUG,CONN. 13P IL-SDA-P
P 10	5336279800	PLUG,CONN. 8P IL-SDA-P
P 11	5336280600	PLUG,CONN. 16P IL-SDA-P
P 12	5336250100	PLUG,CONN. B11B-PH-K-S WHT
P 13	5336249600	PLUG,CONN. B06B-PH-K-S WHT
P 14	5336251600	PLUG,CONN. B06B-PH-K-R RED
U 1	5220806200	IC,M5L8243P

Parts marked with *require longer delivery time.

METER PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200285300	METER PCB ASSY
	*5210285301	METER PCB
D 1- 3	5224016720	DIODE,1SR35-200A FT
P 1	5336287300	PLUG,CONN.S3B-PH-K-S WHT
P 2	5336288000	PLUG,CONN.S10B-PH-K-S WHT
R 13 R23	5280021701	R.,TRIMMER 47KB
R103-803	5280021701	R.,TRIMMER 47KB
U101-801	5220441600	IC.,IR2E41
U102-802	5296007700	LEVEL METER UNIT,GL112J13
U11 U21	5220441600	IC.,IR2E41
U12 U22	5296007700	LEVEL METER UNIT,GL112J13

POWER SUPPLY PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200284900	POWER SUPPLY PCB ASSY [J,US,C,GE]
	*5200284910	POWER SUPPLY PCB ASSY [E,UK,A]
	*5210284901	POWER SUPPLY PCB
	5800990100	HEAT SINK
	5332015800	HOLDER,FUSE [E,UK,A]
	5730018100	CLIP,COATING CP-1S
	5801291900	CASE,SEALED
C 1, 2	⚠5260428210	C.,ELEC.4700UF 25V
C 3	⚠5260426510	C.,ELEC.1000UF 25V
C 4	⚠5260428210	C.,ELEC.4700UF 25V
C 6	⚠5260427710	C.,ELEC.3300UF 25V
C 7, 8	⚠5260427010	C.,ELEC.2200UF 16V
C 9	⚠5260426510	C.,ELEC.1000UF 25V
C 18 C19	5267020420	C.,CERAMIC 0.1UF 50V Z VT
C 21	5173433000	C.,CERAMIC 0.01UF 50V T
C 24	5263105110	C.,POLI 0.082UF 100V J VF
C 26 C27	5173433000	C.,CERAMIC 0.01UF 50V T
C 28	5263164900	C.,METAL 0.1UF 250V
D 3	⚠5228005000	SILICON STACK,W02
D 4- 6	⚠5224016720	DIODE,1SR35-200A FT
D 7- 8	⚠5224015020	DIODE,1SS133T-77
D 9- 10	⚠5224012920	DIODE,1S2473
D 11- 15	⚠5224016720	DIODE,1SR35-200A FT
D 16- 32	⚠5224015020	DIODE,1SS133T-77
D 33	5224012920	DIODE,1S2473
F 1,2,3	⚠5142188000	FUSE,1.6A-250V(T)[E,UK,A]
L 1	5286006700	COIL,CHOKE 1.2MH
P 1	5336126500	PLUG,CONNECTOR 5P
P 2	5336126700	PLUG,CONN.8263-0712 WHT
P 3	5336126300	PLUG,CONNECTOR 3P
P 4	5336249900	PLUG,CONN.B09B-PH-K-S WHT
P 5	5336135300	PLUG,CONN.8263-0312 RED
P 6	5336126400	PLUG,CONNECTOR 4P
P 7	5336052800	PLUG,CONN.5273-08A
Q 1	⚠5230012920	TRANSISTOR 2SA1015GR 0.4 80
Q 2	5230780920	TRANSISTOR 2SC2603F 0.3 200
R 7	⚠5183594000	R.,INCOMBUSTIBLE 470 1/4W
R 14	⚠5241282910	R.,NONFLAMMABLE 2W 10 OHM

POWER SUPPLY PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
R 25, 26	⚠5241283710	R.,NONFLAMMABLE 2W 22 OHM
R 27, 28	5181482000	R.,CARBON R25 1.0K J FT
S 1, 2	5300917000	SLIDE SW 2-2
T 1	5320054800	OSC TRANS.ASSY
TP	5544750000	PIN,CONBINATION
U 1	⚠5220430300	IC.,L78MR05,
U 2	5232255720	TR.,DIGI. DTC124ES
U 3	5232254820	TR.,DIGI. DTA124ES
U 4- 6	5232255720	TR.,DIGI. DTC124ES
U 7	5220021100	IC.,M50780SP
U 8	5220020600	IC.,M50781SP
U 9- 24	5232254820	TR.,DIGI. DTA124ES
U 25 U26	5232250900	TR.,ARRAY BA6251
U 27- 29	5232255720	TR.,DIGI. DTC124ES
U 30	5232254820	TR.,DIGI. DTA124ES
U 31 U33	5232255720	TR.,DIGI. DTC124ES
U 32	5232254820	TR.,DIGI. DTA124ES

POWER SW PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200285000	POWER SW PCB ASSY [J,C,GE]
	*5200285010	POWER SW PCB ASSY [E,UK,A]
	*5200285020	POWER SW PCB ASSY [US]
	*5210285000	POWER SW PCB
C 1	⚠5267704100	SPARK,KILLER 0.0047UF250V
F 1	⚠5307035600	FUSE 3.15A 125V [US]
P 1	5327007200	TERMINAL,2P [E,UK,A]
S 1	⚠5302108100	SW.,SEESAW SDDTA1-A-2

DIODE PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200295900	DIODE PCB ASSY
	*5210295900	DIODE PCB
D 1, 2	⚠5143309000	SI.STACK,3D4B41
P 1	5336247800	PLUG,CONN. S08B-XH-A

Parts marked with *require longer delivery time.

INPUT PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200284100	INPUT PCB ASSY
	*5210284102	INPUT PCB
C 3, 4	5172216000	C.,CERAMIC 220PF/50V T
C 7, 8	5172216000	C.,CERAMIC 220PF/50V T
C 14, 15	5263166923	C.,METAL 0.015MF/50V J VT
C 20	5172208000	C.,CERAMIC 47PF/50V T
C 22	5172216000	C.,CERAMIC 220PF/50V T
C 31	5172208000	C.,CERAMIC 47PF/50V T
C 34	5173433000	C.,CERAMIC 0.01UF 50V T
C 38, 39	5173433000	C.,CERAMIC 0.01UF 50V T
C 40	5173435000	C.,CERAMIC 0.047UF 50V Z
D 1, 2	5224015020	DIODE,1SS133T-77
D 3	5225021500	LED,SLP177B-50
J 1	5336281900	SOCKET,CONNECTOR 9P
J 2	5336282000	SOCKET,CONN. 10P IL-SDA-S
J 3	5334068600	SOCKET,CANNON HA16PRM-3SA(01)
J 4	5330010800	JACK,SINGLE
J 5	5122373000	CONNECTOR,SOCKET 3024-2AH
J 6	5330015600	JACK,3P
J 7	5122374000	CONNECTOR,SOCKET 3024-03A
Q 1, 2	5145119000	TRANSISTOR 2SC-1844F 0.25 100
Q 3	5230780920	TRANSISTOR 2SC2603F 0.3 200
R 17 R18	5183578000	R.,INCOMBUSTIBLE 1/4W 100
R101	5282021200	VR.,10K(RD) 1S1UVR
R102-103	5282021300	VR.,100KB 1S1UVR
R104	5282021400	VR.,10KB 1S1UVR
R105	5282415400	VR.,200KCX2 1S2UVR
R106-107	5282021500	VR.,20K(W) 1S1UVR
R108,110	5282021100	VR.,5KB 1S1UVR
R109	5282021000	VR.,20KA 1S1UVR
U 1	5220439500	IC.,UPC4570HA
U 2	5220075300	IC.,TC9164N
U 3	5220439500	IC.,UPC4570HA
U 4, 6	5220416200	IC.,M5218L,
U 5	5232254820	TR.,DIGI. DTA124ES
	5200296000	INPUT SUB PCB ASSY
	5210296000	INPUT SUB PCB
C 1	5173433000	C.,CERAMIC 0.01UF 50V T
D 1, 2	5224015020	DIODE,1SS133T-77
P 1	5327010900	MINI TERMINAL PLATE 2P P=2.5
P 2	5327010000	MINI TERMINAL P=5
P 3	5327011100	MINI TERMINAL 4P P=2.5
Q 1, 2	5232008420	FET.,2SK381 D

SYNC PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200276910	SYNC PCB ASSY
	*5210276900	SYNC PCB
C 1	12908842	C.,CC 50V 0.1MF Z
C 2, 4	12907113	C, CC 25V 22000PF Z
C 12	12907088	C.,100PF/50V 5%
C 14- 16	12907113	C, CC 25V 22000PF Z
D 1	5224015020	DIODE,1SS133T-77
J 1	5334066300	DIN SOCKET 5PX3
J 2	5330513200	JACK-2P
R 18, 20	5282020800	VR.,10KA 1S1UVR 09
U 1	5228013300	PHOTO-COUPLER PC900MTS-30
U 2	5220059400	IC.,M74LS05P
U 3	5220015900	IC.,HD14011BP,
U 4	5220440600	IC.,NJM4565L

IN/OUT PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200285600	IN/OUT PCB ASSY
	*5210285601	IN/OUT PCB
	5330015700	JACK,4P
	5330015800	JACK,2P
P 1	5336128700	PLUG,CONNECTOR,7P WHT
P 2- 3	5336212600	PLUG,CONN. 5089-6A
P 4	5336128900	PLUG,CONN. 8263-0911 WHT
P 5	5336141400	PLUG,CONN. 8263-0411 BLK
P 6	5336128800	PLUG,CONNECTOR WHITE
P 7	5336128200	CON.,PLUG 8263-0211 WHT

REMOTE PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
1	*5200276811	REMOTE PCB ASSY
	*5210276801	REMOTE PCB
C 1, 2	12907113	C, CC 25V 22000PF Z
D 1, 2	5224015020	DIODE,1SS133T-77
J 1	5334045400	SOCKET,DIN 8P YKF51-5001
J 2	5334055000	SOCKET,CONN.15P
S 1	5302107500	SW.,DIP 2GANG KSP02B

JACK-C PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200286200	JACK-C PCB SAAY
	*5210286201	JACK-C PCB
J 1-8	5330010800	JACK,SINGLE
P 1	5336249500	PLUG,CONN.B05B-PH-K-S WHT
P 2	5336251500	PLUG,CONN.B05B-PH-K-S WHT

Parts marked with *require longer delivery time.

MONITOR-A PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200284300	MONITOR-A PCB ASSY
	*5210284301	MONITOR-A PCB
	5730018100	CLIP,COATING CP-1S
C 3, 4	5173433000	C.,CERAMIC 0.01UF 50V T
C102,202	5172208000	C.,CERAMIC 47PF/50V T
C104,204	5172208000	C.,CERAMIC 47PF/50V T
C107,207	5172208000	C.,CERAMIC 47PF/50V T
C109,209	5172208000	C.,CERAMIC 47PF/50V T
C112,201	5172208000	C.,CERAMIC 47PF/50V T
C302,402	5172208000	C.,CERAMIC 47PF/50V T
J 3	5336281800	SOCKET,CONN.8P IL-SDA-S
J 4	5336282700	SOCKET,CONN 17P IL-SDA-S
R 11, 21	5282021000	VR.,20KA 1S1UVR
R 12, 22	5282021600	VR.,10KA 1S1UVR
R 13	5282415600	VR.,10KAX2 1S2UVR
R 31, 41	5282021000	VR.,20KA 1S1UVR
S 1	5300052500	SW.,PUSH 2-2 SPUJ
U101	5220075300	IC.,TC9164N
U102,202	5220439500	IC.,UPC4570HA
U103,203	5220439500	IC.,UPC4570HA
U104 U204	5220439500	IC.,UPC4570HA
	5200296101	MONITOR A SUB PCB ASSY
	5210296101	MONITOR SUB PCB
C 1	5173433000	C.,CERAMIC 0.01UF 50V T
D 1 D2	5224015020	DIODE,1SS133T-77
P 5	5327010900	MINI TERMINAL P=2.5
P 6	5327010000	MINI TERMINAL 2P P=5
Q 1 Q2	5232008400	FET.,2SK381D

MONITOR-B PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200284400	MONITOR-B PCB ASSY
	*5210284401	MONITOR-B PCB
	5730018100	CLIP,COATING CP-1S
C 3- 6	5173433000	C.,CERAMIC 0.01UF 50V T
C102-802	5172216000	C.,CERAMIC 220PF/50V T
D101,201	5224015020	DIODE,1SS133T-77
D301,401	5224015020	DIODE,1SS133T-77
D501,601	5224015020	DIODE,1SS133T-77
D701,801	5224015020	DIODE,1SS133T-77
J 5	5336281800	SOCKET,CONN. 8P IL-SDA-S
J 6	5336282200	SOCKET,CONN. 12P IL-SDA-S
P 3	5336249400	PLUG,CONNECT.WHT
P 4	5336249300	PLUG,CONNECT.WHT
R 1-8	5282021600	VR.,10KA 1S1UVR
U101,201	5220419400	IC.,LC4066B
U102	5232255720	TR.,DIGI. DTC124ES
U103	5232254820	TR.,DIGI. DTA124ES
U104,204	5232254820	TR.,DIGI. DTA124ES
U105,205	5232255720	TR.,DIGI. DTC124ES
U106,206	5220439500	IC.,UPC4570HA
U301,401	5220419400	IC.,LC4066B
U304,404	5232254820	TR.,DIGI. DTA124ES
U305,405	5232255720	TR.,DIGI. DTC124ES
U306,406	5220439500	IC.,UPC4570HA
U504,604	5232254820	TR.,DIGI. DTA124ES
U505,605	5232255720	TR.,DIGI. DTC124ES
U704,804	5232254820	TR.,DIGI. DTA124ES
U705,805	5232255720	TR.,DIGI. DTC124ES

MONITOR-C PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200284600	MONITOR-C PCB ASSY
	*5210284601	MONITOR-C PCB
	5730018100	CLIP,COATING CP-1S
C 3 C4	5173433000	C.,CERAMIC 0.01UF 50V T
C101,201	5172208000	C.,CERAMIC 47PF/50V T
J 7	5336282100	SOCKET,CONN.11P IL-SDA-S
J 8	5336281600	SOCKET,CON.6P
J 9	5336282300	SOCKET,CONN.13P IL-SDA-S
P 1	5336128500	CONECTOR,PLUG 0511 WHT
R 1- 8	5282415500	VR.,5KA/5KC 1S2UVR
U101	5220075300	IC.,TC9164N
U102	5220439500	IC.,UPC4570HA

MONITOR-D PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
S	*5200284700	MONITOR-D PCB SSY
	*5210284702	MONITOR-D PCB
	5730018100	CLIP,COATING CP-1S
C 3, 4	5173433000	C.,CERAMIC 0.01UF 50V T
C101,201	5172208000	C.,CERAMIC 47PF/50V T
C104,204	5172208000	C.,CERAMIC 47PF/50V T
C107,207	5172208000	C.,CERAMIC 47PF/50V T
C108,208	5263168023	C.,METAL 0.12MF/50V J VT
J 10	5336281800	SOCKET,CONN. 8P IL-SDA-S
J 11	5336282600	SOCKET,CONN 16P IL-SDA-S
P 1- 2	5336249200	PLUG,CONNECT.WHT
P 3	5336128300	PLUG,CONNECTOR 3P WHT
Q101,201	5231762020	TRANSISTOR 2SD1450S/T 0.3
R 1	5282415600	VR.,10KAX2 1S2UVR
S 1	5300052800	PUSH SW 6 SPUJ
U101	5220075300	IC.,TC9164N
U102	5220439500	IC.,UPC4570HA
U103	5220439500	IC.,UPC4570HA
U104	5220441700	IC.,TA7272P
	5200296111	MONITOR D SUB PCB ASSY
	5210296101	MONITOR SUB PCB
C 1	5173433000	C.,CERAMIC 0.01UF 50V T

Parts marked with *require longer delivery time.

MONITOR-D PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
D 1, 2	5224015020	DIODE,1SS133T-77
P 4	5327010000	MINI TERMINAL 2P P=5
P 5	5327010900	MINI TERMINAL 2P P=2.5
Q 1, 2	5232008420	FET.,2SK381D

JOINT PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200285200	JOINT PCB ASSY
	*5210285200	JOINT PCB
U 1	⚠5220434400	IC.,M5F7805L
U 2- 4	⚠5220434800	IC.,M5F7812L
U 5, 6	⚠5220435700	IC.,M5F7912L

PITCH CONT PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200285500	PITCH CONT PCB ASSY
	*5210285500	PITCH CONT PCB
C 1, 3	5172200000	C.,CERAMIC 10PF/50V T
C 2	5263106220	C.,POLY. 220PF 100V J VT
C 4	5263166723	C.,METAL 0.010UF 50V J VT
C 5	5263100520	C.,POLY. 0.001MF/100V J VT
C 6	5173433000	C.,CERAMIC 0.01UF 50V T
D 1,2,4,5	5224015020	DIODE,1SS133T-77
D 3, 6	5224574701	DIODE,ZENER RD8.2EL2 FR
K 1	5290013700	RELAY,SY-12W-K
P 1	5336128400	PLUG,CONNCETOR WHITE
P 2	5336249200	PLUG,CONNECT.WHT
P 3	5336141400	PLUG,CONN. 8263-0411 BLK
P 4	5336288000	PLUG,CONN. S10B-PH-K-S WHT
Q 1	5232008420	FET.,2SK381D
R 19	5282020700	VR.,5KB 1S1UVR 11
R 20	⚠5183562000	R.,INCOMBUSTIBLE 22 1/4W
U 1	5232255720	TR.,DIGI. DTC124ES
U 2	5232254820	TR.,DIGI. DTA124ES
U 3, 4	5232255720	TR.,DIGI. DTC124ES
U 5	5232254820	TR.,DIGI. DTA124ES
U 6	13447343	IC.,LINEAR NJM2904D
U 7	5220419400	IC.,LC4066B
U 8	5232255720	TR.,DIGI. DTC124ES
U 9	5232254820	TR.,DIGI. DTA124ES

ADJ PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200286100	ADJ PCB ASSY
	*5210286100	ADJ PCB
R 1	5280036500	R.,TRIMMER 22KB
R 2	5280035700	R.,TRIMMER 1KB
RT 1	5228015700	THERMISTOR SDT-09 90 OHM

SENSOR PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200250901	SENSOR PCB ASSY
	*5210250901	SENSOR PCB
	5800735900	SPACER
Q1,2,3	5228013100	PHOTO REFLEC.,NJL5141EA-B
R1-3	5240028220	R.,CARBON 1 KOHM R20 T.

LED PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200286300	LED PCB ASSY
	*5210286300	LED PCB
D 1- 3	5225021600	LED,SLP277B-50
D 4	5225021500	LED,SLP177B-50
R 1	5240029620	R.,CARBON 3.9 KOHM R20 T
S 1	5300916900	SLIDE SW 2-3

MECHA CONT PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200276210	MECHA CONT PCB ASSY
	*5210276200	MECHA CONT PCB
	5730018100	CLIP,COATING CP-1S
C 1	12907113	C, CC 25V 22000PF Z
C 3- 4	12906825	C., CC 50V 33PF 5%
C 5- 11	12907113	C, CC 25V 22000PF Z
C 13- 14	12907113	C, CC 25V 22000PF Z
C 16	⚠5260427610	C,ELEC.3300UF 16V
C 17- 18	12908842	C,CC 50V 0.1MF Z
C802	12907113	C, CC 25V 22000PF Z
C803	5263168323	C,METAL 0.22MF 50V J VT
CR 1	5347009900	OSC.,CERAMIC 4.9152MHZ
D 1- 2	5224015020	DIODE,1SS133T-77
D 3	5224574701	DIODE,ZENER RD8.2EL2 FR
D 4- 11	5224015020	DIODE,1SS133T-77
D 12	5224016720	DIODE,1SR35-200A FT
D 13- 16	5224015020	DIODE,1SS133T-77
D 17	5224016720	DIODE,1SR35-200A FT
D801-808	5224015020	DIODE,1SS133T-77
L 1- 2	5286027400	COIL,CHOKE 0.22UH LAL04NA
P 1	5336249700	PLUG,CONNECT.WHT
P 2	5336250000	PLUG,CONN. B10B-PH-K-S WHT
P 3	5336251400	PLUG,CONNECT.RED
P 4	5336252000	PLUG,CONN. B10B-PH-K-R RED
P 5	5336126800	PLUG,CONN. 8263-0812 WHT
P 6	5336250000	PLUG,CONN. B10B-PH-K-S WHT
P 7	5336250200	PLUG,COON. B12B-PH-K-S WHT
P 8	5336249600	PLUG,CONN. B06B-PH-K-S WHT
P 9	5336126500	PLUG,CONNECTOR 5P
P 10	533624940 0	PLUG,CONNECT.WHT

Parts marked with *require longer delivery time.

MECHA CONT PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
P 11	5336126400	PLUG,CONNECTOR 4P
P 12	5336127000	PLUG,CONNECTOR 10P
P 13	5336249400	PLUG,CONNECT.WHT
Q 1- 2	5230780920	TRANSISTOR 2SC2603F 0.3 200
Q801	5230780920	TRANSISTOR 2SC2603F 0.3 200
Q802	5231763000	TRANSISTOR 2SD1380R
Q803	5230780920	TRANSISTOR 2SC2603F 0.3 200
Q804	5231763000	TRANSISTOR 2SD1380R
Q805	5232008420	FET.,2SK381D
R 15	5280021900	R.,TRIMMER 100KB
R 20	5240031420	R.,CARBON 22 KOHM R20 T.
R 21	5280021900	R.,TRIMMER 100KB
R 24	⚠5241270510	R.,NONFLAMMABLE 1W 1 OHM
R 25	⚠5241283710	R.,NONFLAMMABLE 2W 22 OHM
R 26	⚠5241282910	R.,NONFLAMMABLE 2W 10 OHM
R822	5280020700	R.,TRIMMER 1KB
R828	5240032120	R.,CARBON 43KOHM
R834	5240026220	R.,CARBON 150OHM
U 1	5220817400	LSI.,UPD75106CW-
U 2	5242119100	R.,ARRAY RYLS8J103
U 3	5242121800	R.,ARRAY RYLS-4J103
U 4	5220075200	IC.,M75701P
U 5- 7	5232256820	TR.,DIGI. DTB143ES
U 8	5242122000	R.,ARRAY RYLS-7J103
U 9- 10	5232255720	TR.,DIGI. DTC124ES
U 11- 12	5220427800	IC.,BA6209,
U 13- 14	5232255720	TR.,DIGI. DTC124ES
U 15	5220426300	IC.,BA6993,
U 16- 17	5232255720	TR.,DIGI. DTC124ES
U 18	5232257400	TR.,DIGI. DTB113EA
U 19	5232255720	TR.,DIGI. DTC124ES
U 20	5232254820	TR.,DIGI. DTA124ES
U801	5220407200	IC.,LM2904
U802	5232256820	TR.,DIGI. DTB143ES
U803-811	5232255720	TR.,DIGI. DTC124ES

SHTL PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200277000	SHTL PCB ASSY
	*5210277000	SHTL PCB
R 1	5282018800	VR.,20KW 1S1UVR 11

ASN CONT PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200276511	ASN CONT PCB ASSY
	*5210276501	ASN CONT PCB
	5730018100	CLIP,COATING CP-1S
BT 1	5347013100	BATTERY,LITHIUM CR2430-FT10
C 1, 2	12906824	C, CC 50V 30PF 5%
C 3- 5	12907113	C, CC 25V 22000PF Z
C 7	12908842	C, CC 50V 0.1MF Z
C 9	12907105	C, CC 16V 2700PF 10%
C 10	12907109	C, CC 16V 5600PF 10%
C 13	5173435000	C.,CERAMIC 0.047UF 50V Z
C 14	12906821	C, CC 50V 22PF 5%
C 15	12907104	C, CC 16V 2200PF 10%
C 16	12907101	C, CC 16V 1200PF 10%
C 17, 19	12907113	C, CC 25V 22000PF Z
C 18	12907108	C, CC 16V 4700PF 10%
CR 1	5347013200	OSC,CERAMIC CSA12.0MT
D 1, 2	5224016510	DIODE,SIS3M-01P10 VF
D 3- 6	5224015020	DIODE,1SS133T-77
L 1, 2	5286029400	COIL,CHOKE 10UH LAL04KB
P 1	5336251500	PLUG,CONN.B05B-PH-K-R RED
P 2	5336249800	PLUG,CONNECT.WHT
P 3	5336249300	PLUG,CONNECT.WHT
P 4	5336249500	PLUG,CONN.B05B-PH-K-S WHT
P 5	5336250000	PLUG,CONN.B10B-PH-K-S WHT
U 1	5220817300	LSI.,UPD78C12ACW-F06
U 2	5220814900	LSI.,HM6264ALP-15L
U 3	5220052800	IC.,TC74HC373P
U 4	5220806200	IC,M5L8243P
U 5	5242122300	R.,ARRAY RYLS-11J103
U 6, 7	5220442900	IC.,M5223L
U 8	5220017200	IC.,HD14069UBP

JACK-A PCB ASSY

REF.NO.	PARTS NO.	DESCREPTION
	*5200276610	JACK-A PCB ASSY
	*5210276600	JACK-A PCB
C 1- 4	12907096	C, CC 50V 470PF
C 5	12907113	C, CC 25V 22000PF Z
J 1- 2	5330015500	JACK-3P(RED) YKB21-5155

JACK-B PCB ASSY

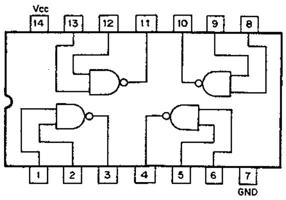
REF.NO.	PARTS NO.	DESCREPTION
	*5200276701	JACK-B PCB ASSY
	*5210276701	JACK-B PCB
C 1- 4	12907113	C, CC 25V 22000PF Z
J 1	5330014800	JACK-1P YKB21-5014
J 2	5330011600	JACK-3P YKB21-5010

Parts marked with *require longer delivery time.

11. IC BLOCK DIAGRAM

ICブロック・ダイヤグラム

HD14011BP
QUAD 2-INPUT NAND GATES


Vcc
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13
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11
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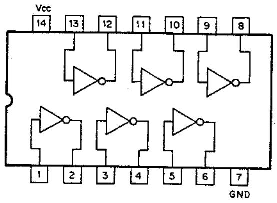
9
8
1
2
3
4
5
6
7
GND

HD14069UBP
HEX INVERTERS


Vcc
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5
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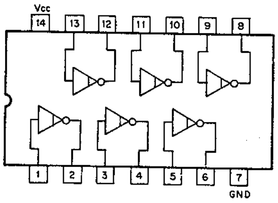
GND

M74LS05P
HEX INVERTERS
WITH OPEN COLLECTOR OUTPUT


Vcc
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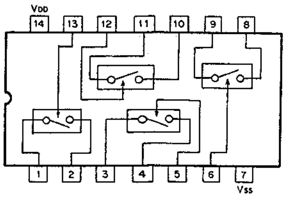
5
6
7
GND

BU4066B
M4066BP
QUAD BILATERAL SWITCHES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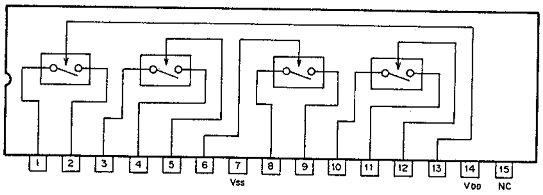
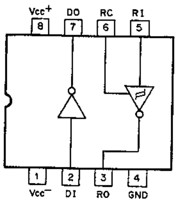
Vss

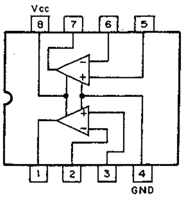
LC4066BS
QUAD BILATERAL SWITCHES


1
2
3
4
5
6
7
Vss
8
9
10
11
12
13
14
VDD
15
NC

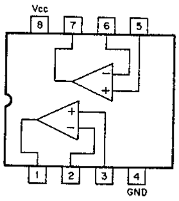
M751701P
RS-232C LINE DRIVER
AND RECEIVER


Vcc+
8
DO
7
RC
6
RI
5
1
Vcc−
2
DI
3
RO
4
GND

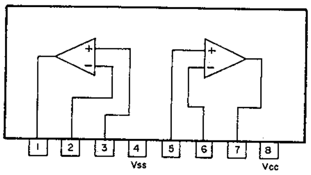
BA6993
DUAL COMPARATOR


Vcc
8
7
6
5
1
2
3
4
GND

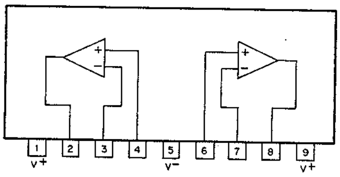
LM2904N
DUAL SINGLE SUPPLY
OPERATIONAL AMPLIFIERS


Vcc
8
7
6
5
1
2
3
4
GND

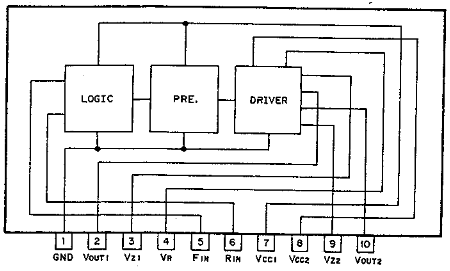
NJM4565L
DUAL OPERATIONAL AMPLIFIERS


1
2
3
4
Vss
5
6
7
8
Vcc

µPC4570HA
DUAL OPERATIONAL AMPLIFIERS

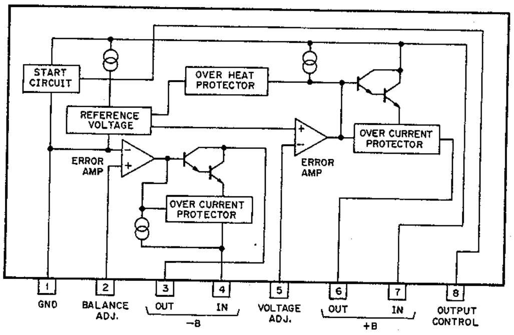

1
V+
2
3
4
5
V−
6
7
8
9
V+

BA6209
MOTOR INVERTING IC

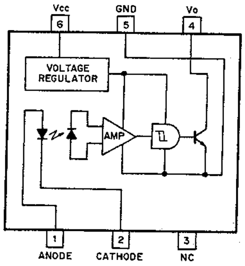

LOGIC
PRE.
DRIVER
1
GND
2
VOUT1
3
VZ1
4
VR
5
FIN
6
RIN
7
VCC1
8
VCC2
9
VZ2
10
VOUT2

FIN	RIN	VOUT1	VOUT2
H	H	L	L
L	H	L	H
H	L	H	L
L	L	L	L

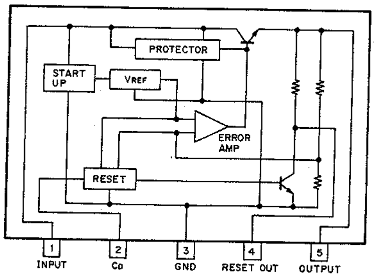
M5230LA
VOLTAGE REGULATOR


START
CIRCUIT
OVER HEAT
PROTECTOR
REFERENCE
VOLTAGE
ERROR
AMP
OVER CURRENT
PROTECTOR
ERROR
AMP
OVER CURRENT
PROTECTOR
1
GND
2
BALANCE
ADJ.
3
OUT
4
IN
−B
5
VOLTAGE
ADJ.
6
OUT
7
IN
+B
8
OUTPUT
CONTROL

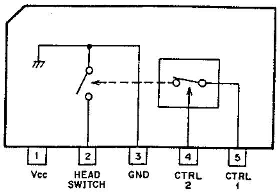
PC900
DIGITAL OUTPUT TYPE
OPIC PHOTOCOUPLER


Vcc
6
GND
5
Vo
4
VOLTAGE
REGULATOR
AMP
1
ANODE
2
CATHODE
3
NC

L78MR05
VOLTAGE REGULATOR
WITH RESET OUTPUT

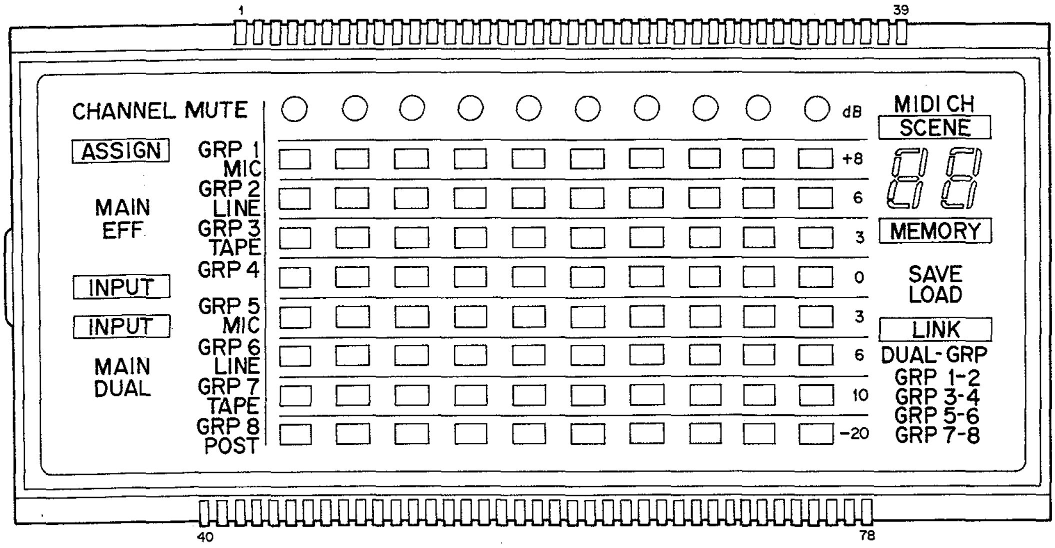

PROTECTOR
START
UP
VREF
ERROR
AMP
RESET
1
INPUT
2
CD
3
GND
4
RESET OUT
5
OUTPUT

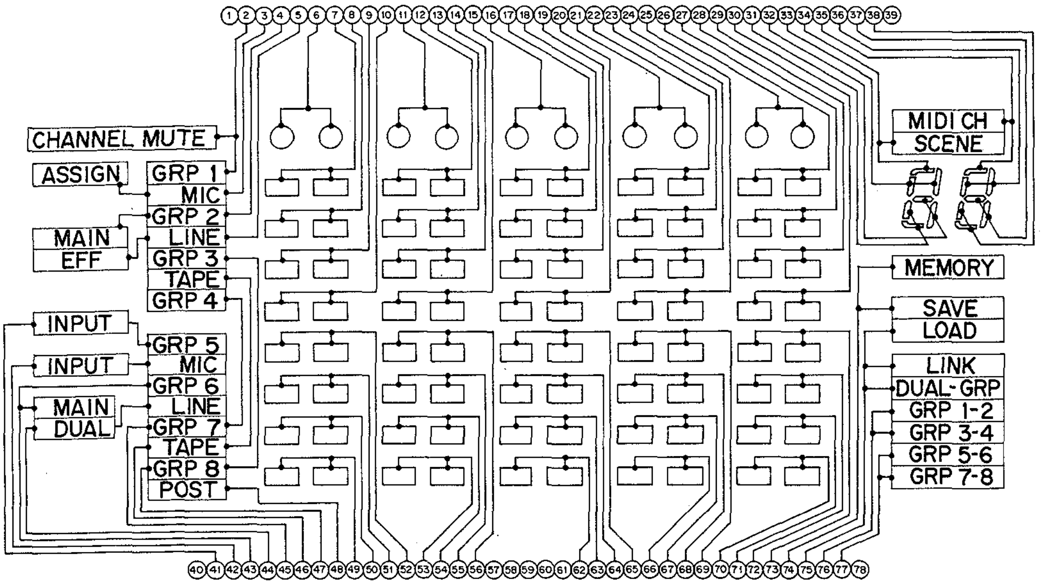
BA7755
AUDIO HEAD SWITCHER

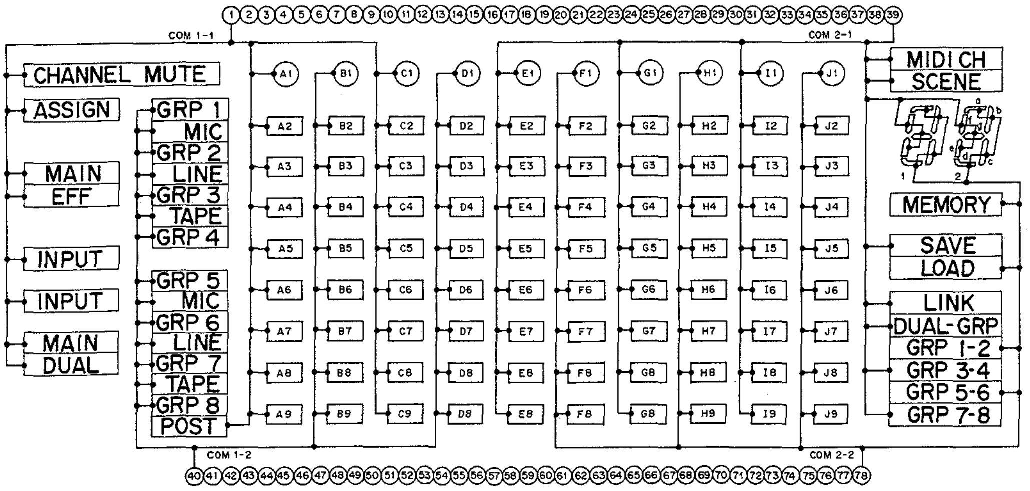

1
Vcc
2
HEAD
SWITCH
3
GND
4
CTRL
2
5
CTRL
1

CTRL 1	CTRL 2	HEAD SW
L	L	ON
	H	OFF

LCD-8062PR1
LCD ASSIGN (1)


1
39
CHANNEL MUTE
dB
MIDI CH
SCENE
ASSIGN
GRP 1
MIC
+8
MAIN
EFF
GRP 2
LINE
6
GRP 3
TAPE
3
MEMORY
GRP 4
0
SAVE
LOAD
INPUT
INPUT
GRP 5
MIC
3
LINK
MAIN
DUAL
GRP 6
LINE
6
DUAL-GRP
GRP 7
TAPE
10
GRP 1-2
GRP 3-4
GRP 5-6
GRP 8
POST
-20
GRP 7-8
40
78


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
CHANNEL MUTE
ASSIGN
GRP 1
MIC
MAIN
EFF
GRP 2
LINE
GRP 3
TAPE
GRP 4
INPUT
INPUT
GRP 5
MIC
MAIN
DUAL
GRP 6
LINE
GRP 7
TAPE
GRP 8
POST
MIDI CH
SCENE
MEMORY
SAVE
LOAD
LINK
DUAL-GRP
GRP 1-2
GRP 3-4
GRP 5-6
GRP 7-8
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78

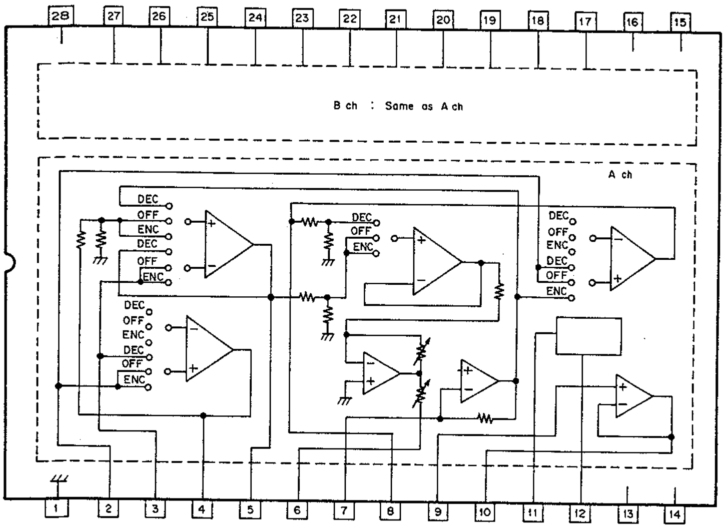

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
COM 1-1
COM 2-1
CHANNEL MUTE
ASSIGN
GRP 1
MIC
MAIN
EFF
GRP 2
LINE
GRP 3
TAPE
GRP 4
INPUT
INPUT
GRP 5
MIC
MAIN
DUAL
GRP 6
LINE
GRP 7
TAPE
GRP 8
POST
A1 B1 C1 D1 E1 F1 G1 H1 I1 J1
A2 B2 C2 D2 E2 F2 G2 H2 I2 J2
A3 B3 C3 D3 E3 F3 G3 H3 I3 J3
A4 B4 C4 D4 E4 F4 G4 H4 I4 J4
A5 B5 C5 D5 E5 F5 G5 H5 I5 J5
A6 B6 C6 D6 E6 F6 G6 H6 I6 J6
A7 B7 C7 D7 E7 F7 G7 H7 I7 J7
A8 B8 C8 D8 E8 F8 G8 H8 I8 J8
A9 B9 C9 D8 E8 F8 G8 H9 I9 J9
MIDI CH
SCENE
a
b
c
d
e
f
g
1
2
MEMORY
SAVE
LOAD
LINK
DUAL-GRP
GRP 1-2
GRP 3-4
GRP 5-6
GRP 7-8
COM 1-2
COM 2-2
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78

Pin	COM 1-1	COM 1-2	COM 2-1	COM 2-2
1	COM 1-1	—	—	—
2	CHANNEL MUTE	GRP 1	—	—
3	ASSIGN	(U) MIC	—	—
4	(U) MAIN	GRP 2	—	—
5	EFF	(U) LINE	—	—
6	A1	B1	—	—
7	A2	B2	—	—
8	A3	B3	—	—
9	A4	B4	—	—
10	A5	B5	—	—
11	C1	D1	—	—
12	C2	D2	—	—
13	C3	D3	—	—
14	C4	D4	—	—
15	C5	D5	—	—
16	—	—	E1	F1
17	—	—	E2	F2
18	—	—	E3	F3
19	—	—	E4	F4
20	—	—	E5	F5
21	—	—	G1	H1
22	—	—	G2	H2
23	—	—	G3	H3
24	—	—	G4	H4
25	—	—	G5	H5
26	—	—	I1	J1
27	—	—	I2	J2
28	—	—	I3	J3
29	—	—	I4	J4
30	—	—	I5	J5
31	—	—	1e	1d
32	—	—	1g	1c
33	—	—	1f	1b
34	—	—	SCENE	1a
35	—	—	MIDI CH	2a
36	—	—	2f	2b
37	—	—	2g	2c
38	—	—	2e	2d
39	—	—	COM 2-1	—
40	—	COM 1-2	—	—
41	(U) INPUT	GRP 5	—	—
42	(L) INPUT	(L) MIC	—	—
43	(L) MAIN	GRP 6	—	—
44	DUAL	(L) LINE	—	—
45	GRP 7	GRP 4	—	—
46	(L) TAPE	(U) TAPE	—	—
47	GRP 8	GRP 3	—	—
48	POST	—	—	—
49	A9	B9	—	—
50	A8	B8	—	—
51	A7	B7	—	—
52	A6	B6	—	—
53	C9	D9	—	—
54	C8	D8	—	—
55	C7	D7	—	—
56	C6	D6	—	—
57	—	—	—	—
58	—	—	—	—
59	—	—	—	—
60	—	—	—	—
61	—	—	—	—
62	—	—	E9	F9
63	—	—	E8	F8
64	—	—	E7	F7
65	—	—	E6	F6
66	—	—	G9	H9
67	—	—	G8	H8
68	—	—	G7	H7
69	—	—	G6	H6
70	—	—	I9	J9
71	—	—	I8	J8
72	—	—	I7	J7
73	—	—	I6	J6
74	—	—	SAVE	MEMORY
75	—	—	LINK DUAL-GRP	LOAD
76	—	—	GRP 3-4	GRP 1-2
77	—	—	GRP 7-8	GRP 5-6
78	—	—		COM 2-2

(U) : UPPER
(L) : LOWER

AN6292NK

DUAL dbx NOISE REDUCTION PROCESSOR

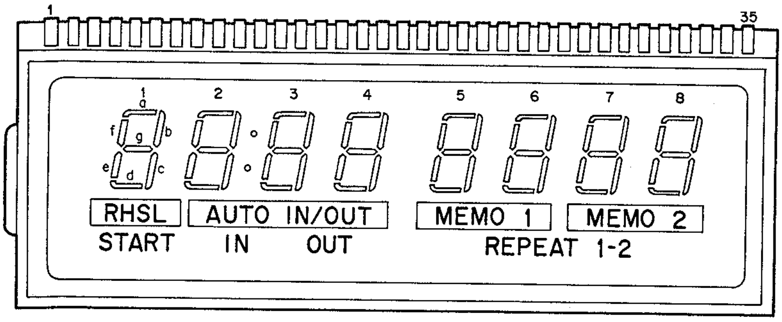


B ch : Same as A ch
A ch
DEC
OFF
ENC
28
27
26
25
24
23
22
21
20
19
18
17
16
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14

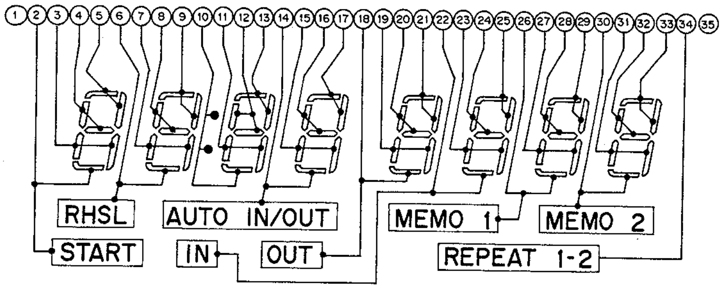
1	GND	
2	SIGNAL INPUT	A ch
3	EMPHASIS	
4	LINE AMP OUTPUT	
5	EMPHASIS AMP OUTPUT	
6	SWITCH OUTPUT	
7	CCA INPUT	
8	REC AMP OUTPUT	
9	BUFFER AMP INPUT	
10	BUFFER AMP OUTPUT	
11	LEVEL SENSOR INPUT	
12	TIMING CAPACITOR	
13	TIMING CURRENT ADJ.	
14	−B POWER SUPPLY	
15	dbx ON / OFF	
16	ENCODE / DECODE	
17	TIMING CAPACITOR	B ch
18	LEVEL SENSOR INPUT	
19	BUFFER AMP OUTPUT	
20	BUFFER AMP INPUT	
21	REC AMP OUTPUT	
22	CCA INPUT	
23	SWITCH OUTPUT	
24	EMPHASIS AMP OUTPUT	
25	LINE AMP OUTPUT	
26	EMPHASIS	
27	SIGNAL INPUT	
28	+B POWER SUPPLY	

LCD-8061PR

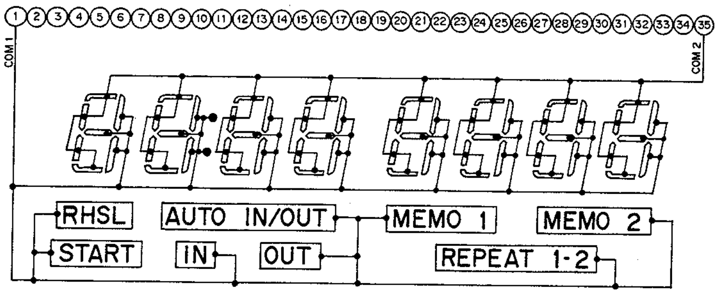
LCD COUNTER



1
35
1
2
3
4
5
6
7
8
a
b
c
d
e
f
g
RHSL
AUTO IN/OUT
MEMO 1
MEMO 2
START
IN
OUT
REPEAT 1-2



①②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮⑯⑰⑱⑲⑳㉑㉒㉓㉔㉕㉖㉗㉘㉙㉚㉛㉜㉝㉞㉟
RHSL
AUTO IN/OUT
MEMO 1
MEMO 2
START
IN
OUT
REPEAT 1-2



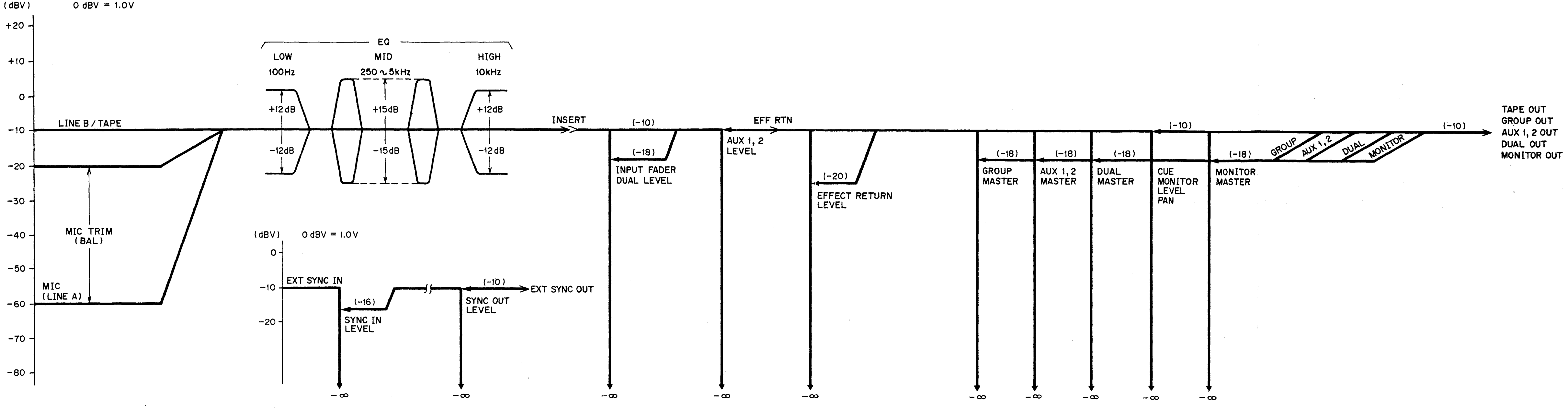
①②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮⑯⑰⑱⑲⑳㉑㉒㉓㉔㉕㉖㉗㉘㉙㉚㉛㉜㉝㉞㉟
COM 1
COM 2
RHSL
AUTO IN/OUT
MEMO 1
MEMO 2
START
IN
OUT
REPEAT 1-2

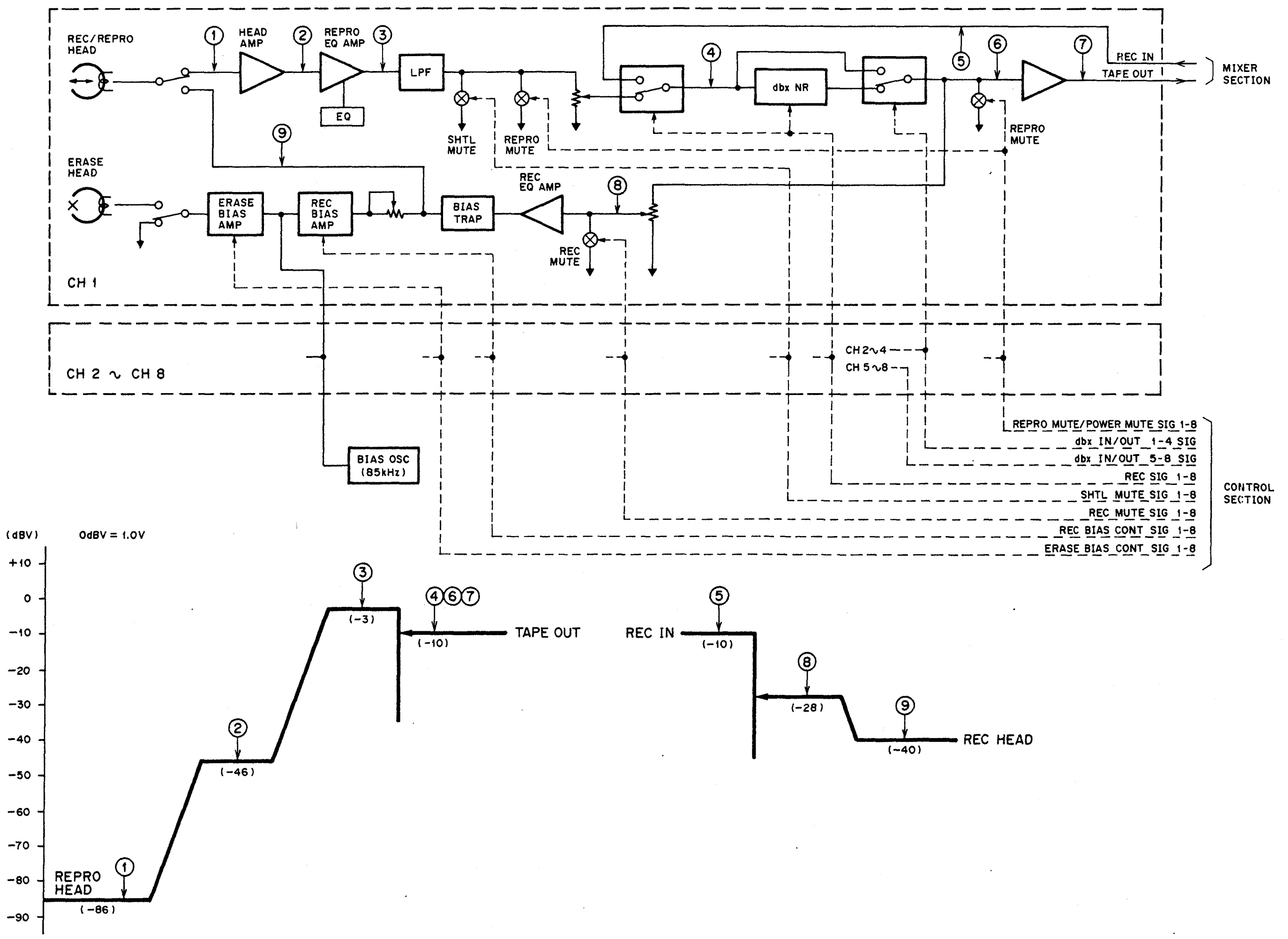
	COM 1	COM 2
1	COM 1	—
2	START	1d
3	1c	1e
4	1g	1f
5	1b	1a
6	RHSL	2d
7	2c	2e
8	2g	2f
9	2b	2a
10	COLUMN	3d
11	3c	3e
12	3g	3f
13	3b	3a
14	(1)	4d
15	4c	4e
16	4g	4f
17	4b	4a
18	OUT	5d
19	5c	5e
20	5g	5f
21	5b	5a
22	IN	6d
23	6c	6e
24	6g	6f
25	6b	6a
26	MEMO 1	7d
27	7c	7e
28	7g	7f
29	7b	7a
30	MEMO 2	8d
31	8c	8e
32	8g	8f
33	8b	8a
34	(2)	—
35	—	COM 2

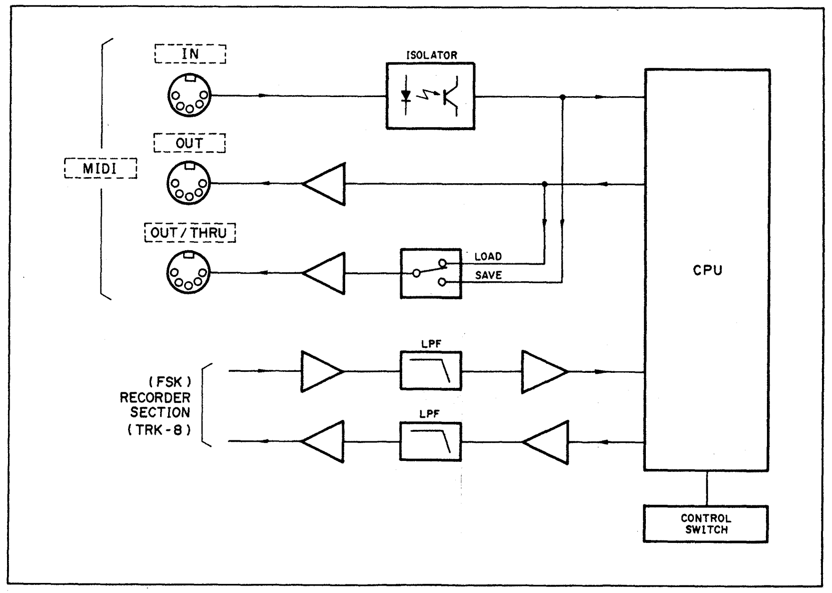
(1) : AUTO IN/OUT
(2) : REPEAT 1-2

12. BLOCK AND LEVEL DIAGRAM

ブロックとレベルダイヤグラム

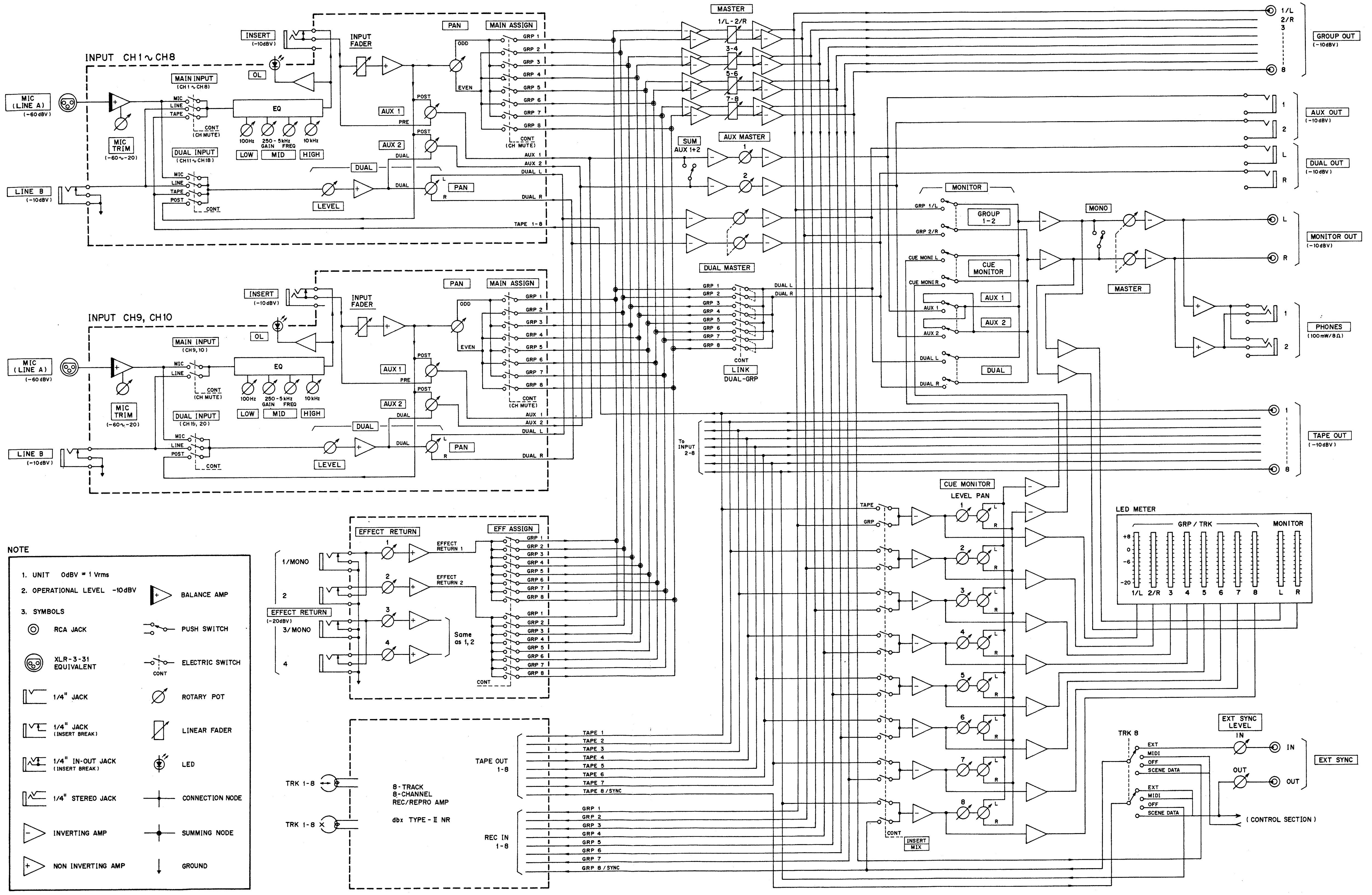

(dBV)
0 dBV = 1.0V
+20
+10
0
-10
-20
-30
-40
-50
-60
-70
-80
LINE B / TAPE
MIC TRIM
(BAL)
MIC
(LINE A)
EQ
LOW
100Hz
MID
250 ∿ 5kHz
HIGH
10kHz
+12dB
-12dB
+15dB
-15dB
+12dB
-12dB
INSERT
(-10)
(-18)
INPUT FADER
DUAL LEVEL
EFF RTN
AUX 1, 2
LEVEL
(-20)
EFFECT RETURN
LEVEL
(-18)
GROUP
MASTER
(-18)
AUX 1, 2
MASTER
(-18)
DUAL
MASTER
(-10)
CUE
MONITOR
LEVEL
PAN
(-18)
MONITOR
MASTER
GROUP
AUX 1, 2
DUAL
MONITOR
(-10)
TAPE OUT
GROUP OUT
AUX 1, 2 OUT
DUAL OUT
MONITOR OUT
(dBV)
0 dBV = 1.0V
0
-10
-20
EXT SYNC IN
(-16)
SYNC IN
LEVEL
(-10)
EXT SYNC OUT
SYNC OUT
LEVEL
-∞


REC/REPRO
HEAD
①
HEAD
AMP
②
REPRO
EQ AMP
③
LPF
EQ
SHTL
MUTE
REPRO
MUTE
④
dbx NR
⑤
⑥
⑦
REC IN
TAPE OUT
MIXER
SECTION
REPRO
MUTE
⑨
ERASE
HEAD
ERASE
BIAS
AMP
REC
BIAS
AMP
BIAS
TRAP
REC
EQ AMP
⑧
REC
MUTE
CH 1
CH 2 ∿ CH 8
CH2∿4
CH5∿8
BIAS OSC
(85kHz)
REPRO MUTE/POWER MUTE SIG 1-8
dbx IN/OUT 1-4 SIG
dbx IN/OUT 5-8 SIG
REC SIG 1-8
SHTL MUTE SIG 1-8
REC MUTE SIG 1-8
REC BIAS CONT SIG 1-8
ERASE BIAS CONT SIG 1-8
CONTROL
SECTION
(dBV)
0dBV = 1.0V
+10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
REPRO
HEAD
①
(-86)
②
(-46)
③
(-3)
④⑥⑦
(-10)
TAPE OUT
REC IN
⑤
(-10)
⑧
(-28)
⑨
(-40)
REC HEAD


MIDI
IN
OUT
OUT / THRU
ISOLATOR
LOAD
SAVE
CPU
(FSK)
RECORDER
SECTION
(TRK-8)
LPF
LPF
CONTROL
SWITCH

13. SCHEMATIC DIAGRAM

回路図


INPUT CH1 ~ CH8
MIC (LINE A) (-60dBV)
LINE B (-10dBV)
MIC TRIM (-60 ~ -20)
INSERT (-10dBV)
OL
INPUT FADER
MAIN INPUT (CH1 ~ CH8)
DUAL INPUT (CH11 ~ CH18)
MIC
LINE
TAPE
POST
CONT (CH MUTE)
EQ
100Hz
250 - 5kHz GAIN FREQ
10kHz
LOW
MID
HIGH
AUX 1
AUX 2
PRE
DUAL
LEVEL
PAN
MAIN ASSIGN
ODD
EVEN
GRP 1
GRP 2
GRP 3
GRP 4
GRP 5
GRP 6
GRP 7
GRP 8
DUAL L
DUAL R
TAPE 1-8
INPUT CH9, CH10
MAIN INPUT (CH9, 10)
DUAL INPUT (CH19, 20)
MASTER
1/L-2/R
3-4
5-6
7-8
SUM AUX 1+2
AUX MASTER
DUAL MASTER
LINK DUAL-GRP
GROUP OUT (-10dBV)
1/L
2/R
3
8
AUX OUT (-10dBV)
DUAL OUT (-10dBV)
MONITOR
GRP 1/L
GRP 2/R
GROUP 1-2
CUE MONI L
CUE MONI R
CUE MONITOR
AUX 1
AUX 2
DUAL L
DUAL R
DUAL
MONO
MASTER
MONITOR OUT (-10dBV)
L
R
PHONES (100mW/8Ω)
TAPE OUT (-10dBV)
To INPUT 2-8
CUE MONITOR LEVEL PAN
TAPE
GRP
CONT
INSERT MIX
LED METER
GRP / TRK
MONITOR
+8
0
-6
-20
1/L 2/R 3 4 5 6 7 8 L R
EFFECT RETURN
EFF ASSIGN
EFFECT RETURN 1
EFFECT RETURN 2
1/MONO
2
3/MONO
4
EFFECT RETURN (-20dBV)
Same as 1, 2
TAPE OUT 1-8
TAPE 1 ... TAPE 8/SYNC
TRK 1-8
8-TRACK 8-CHANNEL REC/REPRO AMP
dbx TYPE-Ⅱ NR
REC IN 1-8
GRP 1 ... GRP 8/SYNC
EXT SYNC LEVEL
IN
OUT
EXT SYNC
TRK 8
EXT
MIDI
OFF
SCENE DATA
(CONTROL SECTION)
NOTE
1. UNIT 0dBV = 1 Vrms
2. OPERATIONAL LEVEL -10dBV
3. SYMBOLS
RCA JACK
XLR-3-31 EQUIVALENT
1/4" JACK
1/4" JACK (INSERT BREAK)
1/4" IN-OUT JACK (INSERT BREAK)
1/4" STEREO JACK
INVERTING AMP
NON INVERTING AMP
BALANCE AMP
PUSH SWITCH
ELECTRIC SWITCH
ROTARY POT
LINEAR FADER
LED
CONNECTION NODE
SUMMING NODE
GROUND

TASCAM
TEAC Professional Division

SCHEMATIC DIAGRAMS

688

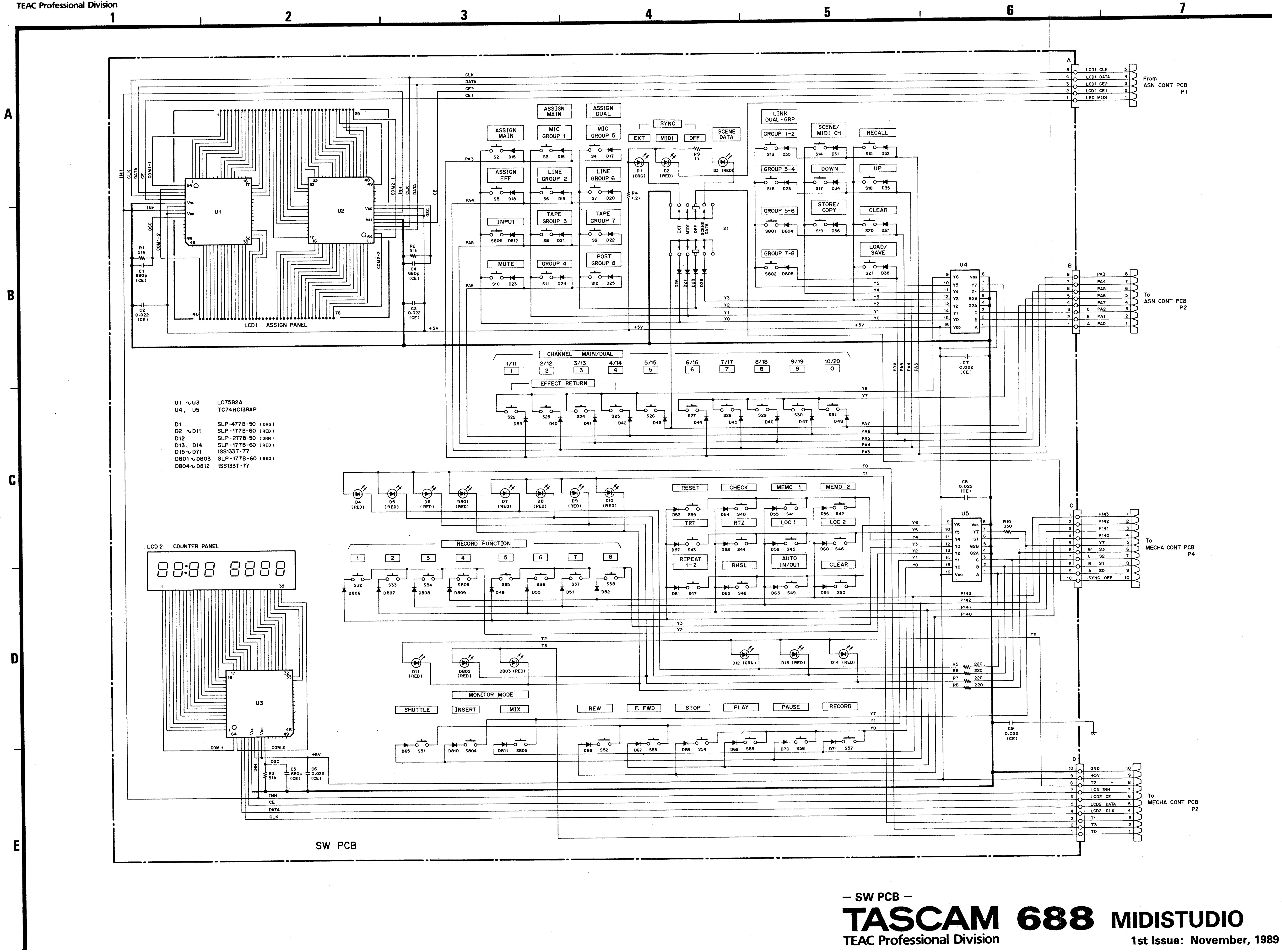
INSTRUCTIONS FOR SERVICE PERSONNEL
BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT.

NOTES

1. Resistor values are in ohms (k = kilo-ohms, M = megohms)
2. Capacitor values are in microfarads (p = picofarads).

TASCAM 688 MIDISTUDIO SCHEMATIC DIAGRAM — SW PCB —

TEAC Professional Division


1
2
3
4
5
6
7
A
B
C
D
E
LCD1 ASSIGN PANEL
U1
U2
U3
U4
U5
LCD 2 COUNTER PANEL
U1 ~U3 LC7582A
U4, U5 TC74HC138AP
D1 SLP-477B-50 (ORG)
D2 ~D11 SLP-177B-60 (RED)
D12 SLP-277B-50 (GRN)
D13, D14 SLP-177B-60 (RED)
D15~D71 1SS133T-77
D801~D803 SLP-177B-60 (RED)
D804~D812 1SS133T-77
ASSIGN MAIN
ASSIGN DUAL
MIC GROUP 1
MIC GROUP 5
ASSIGN EFF
LINE GROUP 2
LINE GROUP 6
INPUT
TAPE GROUP 3
TAPE GROUP 7
MUTE
GROUP 4
POST GROUP 8
SYNC
EXT
MIDI
OFF
SCENE DATA
LINK DUAL-GRP
GROUP 1-2
GROUP 3-4
GROUP 5-6
GROUP 7-8
SCENE/MIDI CH
DOWN
STORE/COPY
RECALL
UP
CLEAR
LOAD/SAVE
CHANNEL MAIN/DUAL
EFFECT RETURN
RECORD FUNCTION
RESET
CHECK
MEMO 1
MEMO 2
RTZ
LOC 1
LOC 2
REPEAT 1-2
RHSL
AUTO IN/OUT
MONITOR MODE
SHUTTLE
INSERT
MIX
REW
F. FWD
STOP
PLAY
PAUSE
RECORD
From ASN CONT PCB P1
To ASN CONT PCB P2
To MECHA CONT PCB P4
To MECHA CONT PCB P2
SW PCB

— SW PCB —

TASCAM 688 MIDISTUDIO

TEAC Professional Division

1st Issue: November, 1989

TASCAM 688 MIDISTUDIO WIRING DIAGRAM

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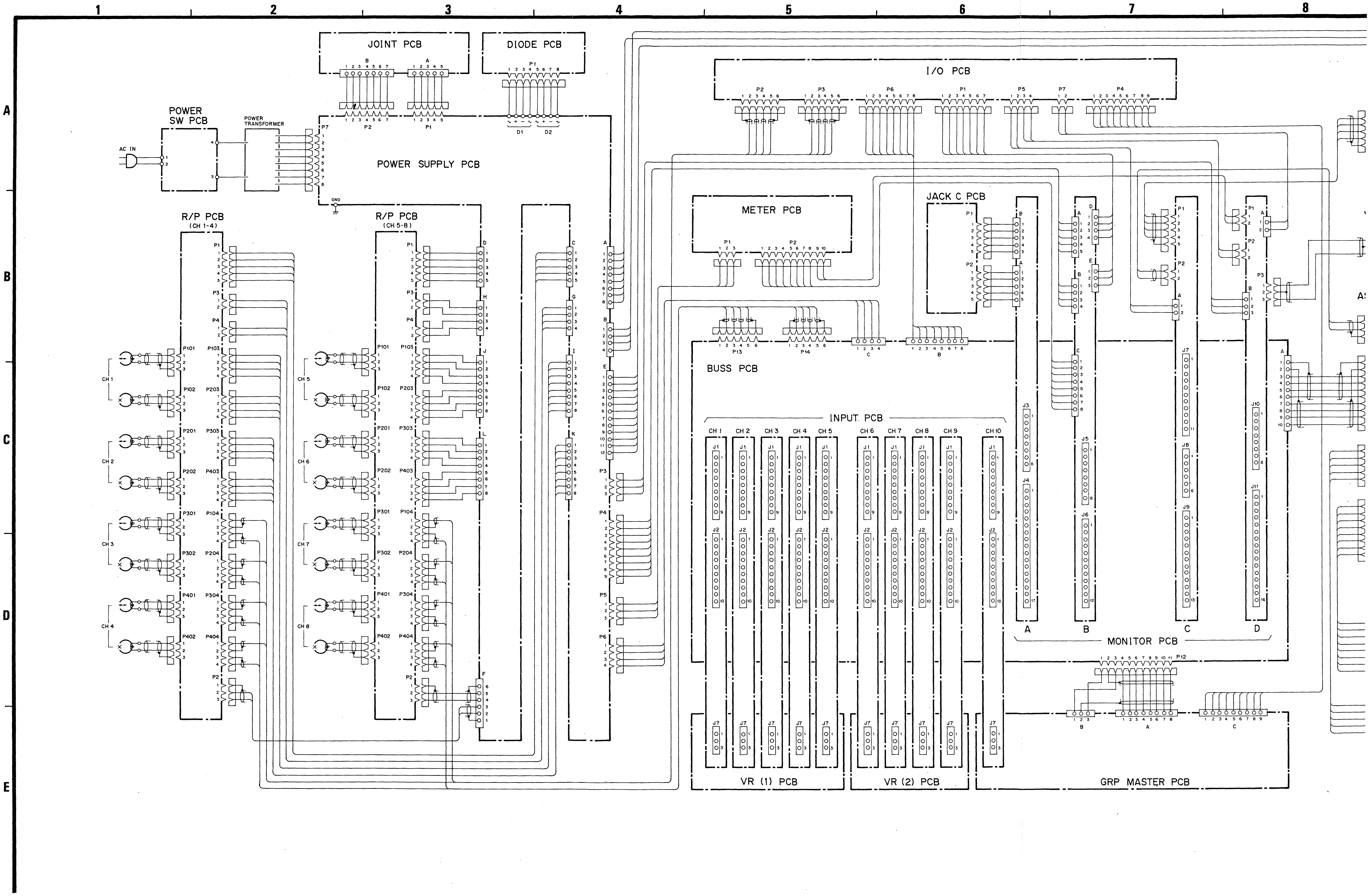
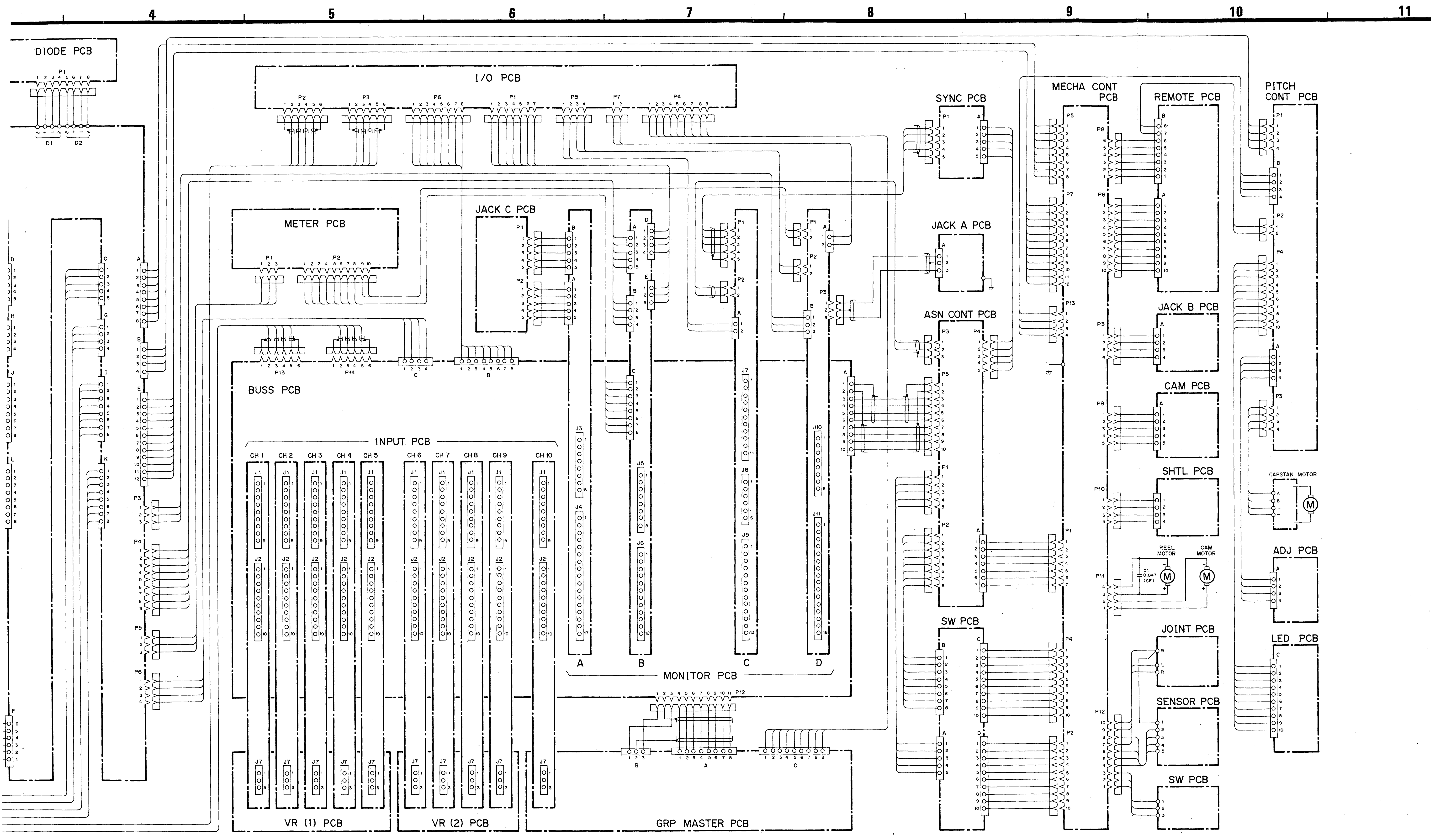

1
2
3
4
5
6
7
8
A
B
C
D
E
JOINT PCB
DIODE PCB
POWER SW PCB
POWER TRANSFORMER
AC IN
POWER SUPPLY PCB
GND
D1
D2
I/O PCB
R/P PCB (CH 1-4)
R/P PCB (CH 5-8)
METER PCB
JACK C PCB
BUSS PCB
INPUT PCB
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
CH 7
CH 8
CH 9
CH 10
MONITOR PCB
VR (1) PCB
VR (2) PCB
GRP MASTER PCB


4
5
6
7
8
9
10
11
DIODE PCB
D1
D2
I/O PCB
P2
P3
P6
P1
P5
P7
P4
METER PCB
P1
P2
JACK C PCB
SYNC PCB
JACK A PCB
ASN CONT PCB
MECHA CONT PCB
REMOTE PCB
PITCH CONT PCB
JACK B PCB
CAM PCB
SHTL PCB
CAPSTAN MOTOR
REEL MOTOR
CAM MOTOR
C1 0.047 (CE)
ADJ PCB
JOINT PCB
SENSOR PCB
SW PCB
LED PCB
SW PCB
BUSS PCB
P13
P14
INPUT PCB
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
CH 7
CH 8
CH 9
CH 10
J1
J2
J7
A
B
C
D
MONITOR PCB
P12
VR (1) PCB
VR (2) PCB
GRP MASTER PCB

— WIRING DIAGRAM —

TASCAM 688 MIDISTUDIO

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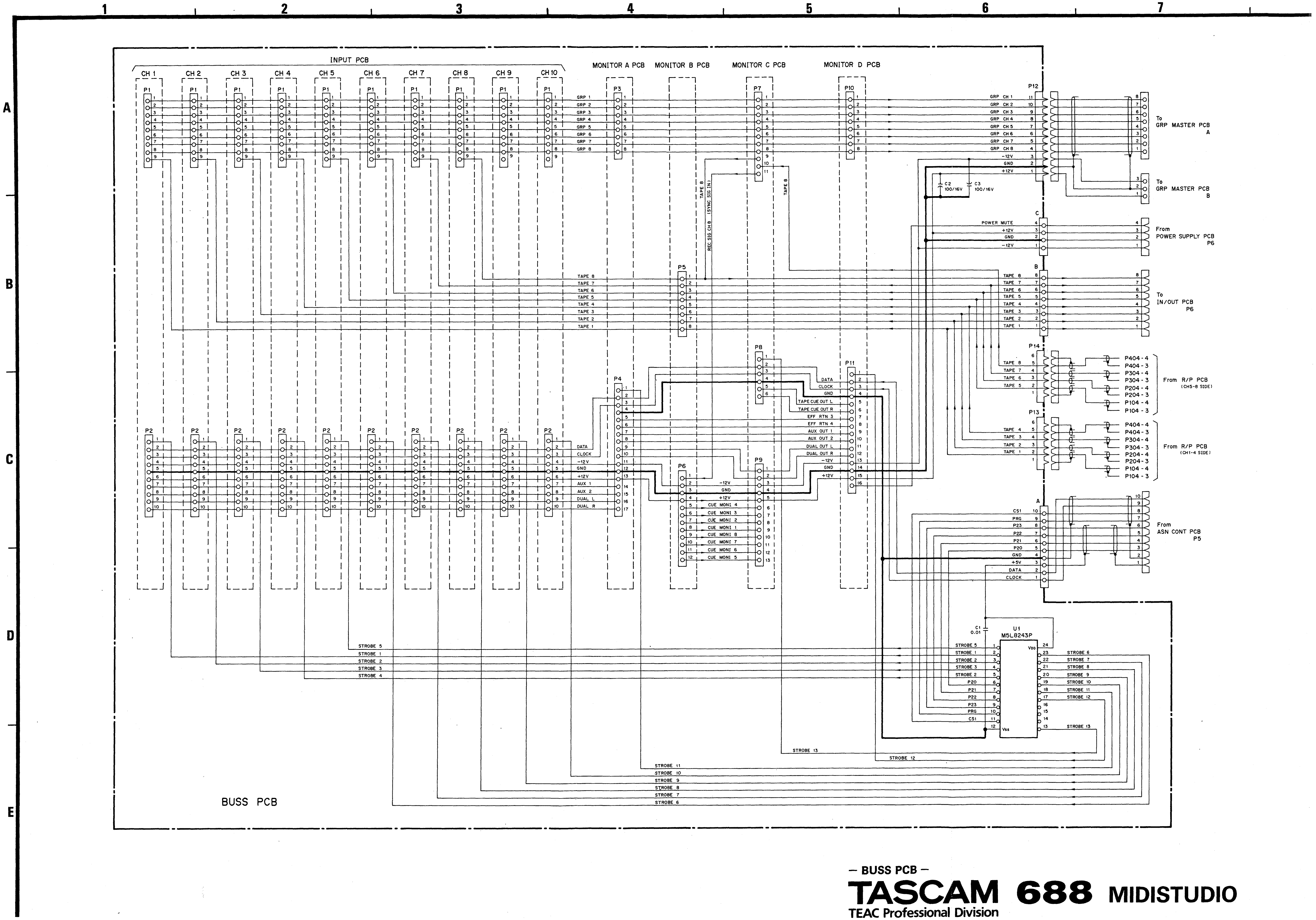
TASCAM 688 MIDISTUDIO SCHEMATIC DIAGRAM — BUSS PCB —

TEAC Professional Division


1
2
3
4
5
6
7
A
B
C
D
E
INPUT PCB
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
CH 7
CH 8
CH 9
CH 10
MONITOR A PCB
MONITOR B PCB
MONITOR C PCB
MONITOR D PCB
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
P12
P13
P14
GRP 1
GRP 2
GRP 3
GRP 4
GRP 5
GRP 6
GRP 7
GRP 8
GRP CH 1
GRP CH 2
GRP CH 3
GRP CH 4
GRP CH 5
GRP CH 6
GRP CH 7
GRP CH 8
-12V
GND
+12V
C2 100/16V
C3 100/16V
To GRP MASTER PCB A
To GRP MASTER PCB B
REC SIG CH 8 (SYNC SIG IN)
TAPE 8
POWER MUTE
From POWER SUPPLY PCB P6
TAPE 1
TAPE 2
TAPE 3
TAPE 4
TAPE 5
TAPE 6
TAPE 7
To IN/OUT PCB P6
P404-4
P404-3
P304-4
P304-3
P204-4
P204-3
P104-4
P104-3
From R/P PCB (CH5-8 SIDE)
From R/P PCB (CH1-4 SIDE)
DATA
CLOCK
TAPE CUE OUT L
TAPE CUE OUT R
EFF RTN 3
EFF RTN 4
AUX OUT 1
AUX OUT 2
DUAL OUT L
DUAL OUT R
AUX 1
AUX 2
DUAL L
DUAL R
CUE MONI 1
CUE MONI 2
CUE MONI 3
CUE MONI 4
CUE MONI 5
CUE MONI 6
CUE MONI 7
CUE MONI 8
CS1
PRG
P23
P22
P21
P20
+5V
From ASN CONT PCB P5
C1 0.01
U1 M5L8243P
VDD
VSS
STROBE 1
STROBE 2
STROBE 3
STROBE 4
STROBE 5
STROBE 6
STROBE 7
STROBE 8
STROBE 9
STROBE 10
STROBE 11
STROBE 12
STROBE 13
BUSS PCB

— BUSS PCB —

TASCAM 688 MIDISTUDIO

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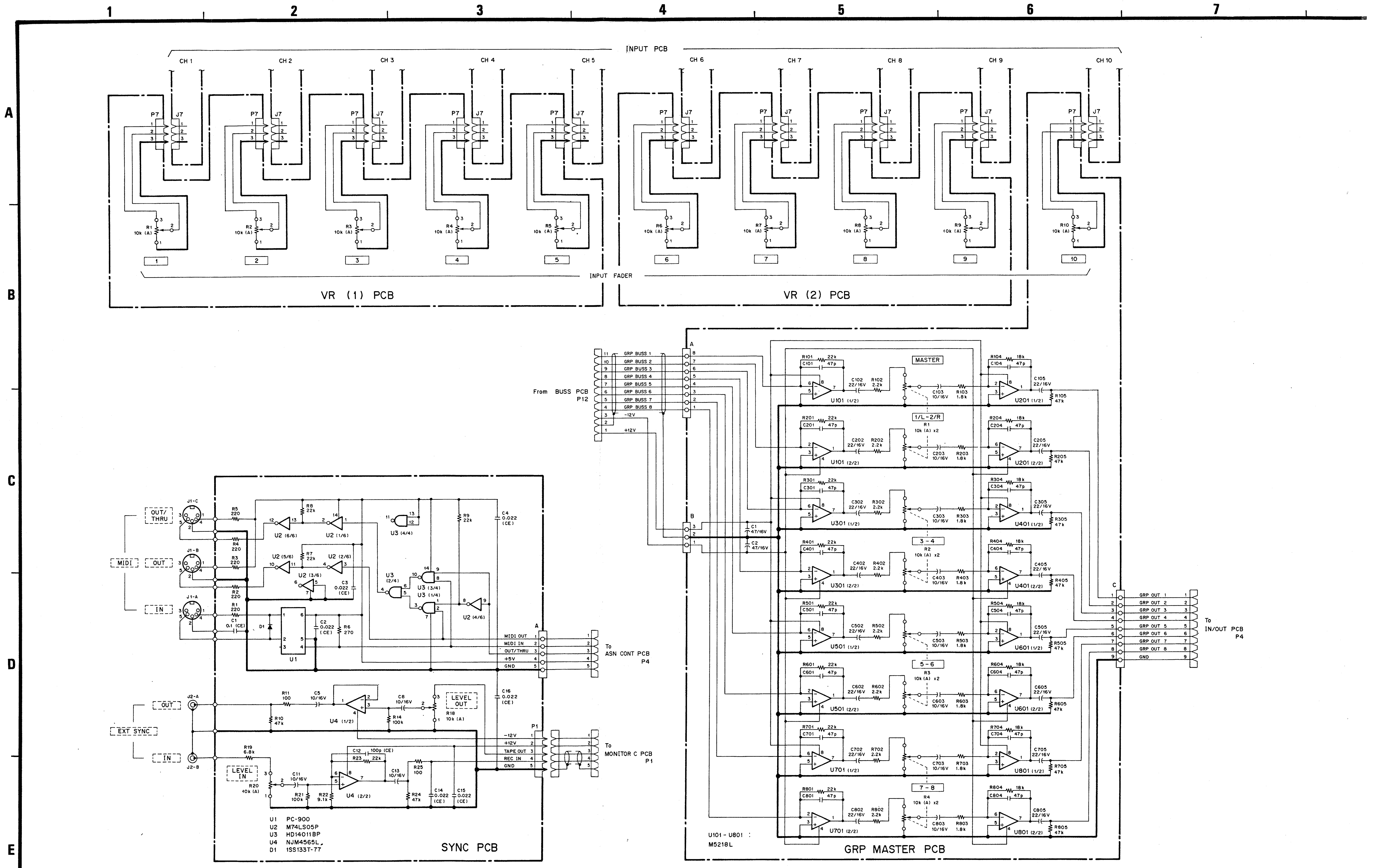
1
2
3
4
5
6
7
A
B
C
D
E
INPUT PCB
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
CH 7
CH 8
CH 9
CH 10
P7
J7
R1 10k (A)
R2 10k (A)
R3 10k (A)
R4 10k (A)
R5 10k (A)
R6 10k (A)
R7 10k (A)
R8 10k (A)
R9 10k (A)
R10 10k (A)
INPUT FADER
VR (1) PCB
VR (2) PCB
From BUSS PCB P12
GRP BUSS 1
GRP BUSS 2
GRP BUSS 3
GRP BUSS 4
GRP BUSS 5
GRP BUSS 6
GRP BUSS 7
GRP BUSS 8
-12V
+12V
C1 47/16V
C2 47/16V
MASTER
1/L-2/R
3-4
5-6
7-8
U101 (1/2)
U101 (2/2)
U201 (1/2)
U201 (2/2)
U301 (1/2)
U301 (2/2)
U401 (1/2)
U401 (2/2)
U501 (1/2)
U501 (2/2)
U601 (1/2)
U601 (2/2)
U701 (1/2)
U701 (2/2)
U801 (1/2)
U801 (2/2)
U101 - U801 : M5218L
GRP MASTER PCB
GRP OUT 1
GRP OUT 2
GRP OUT 3
GRP OUT 4
GRP OUT 5
GRP OUT 6
GRP OUT 7
GRP OUT 8
GND
To IN/OUT PCB P4
MIDI
OUT/THRU
OUT
IN
J1-C
J1-B
J1-A
EXT SYNC
J2-A
J2-B
LEVEL OUT
LEVEL IN
MIDI OUT
MIDI IN
OUT/THRU
+5V
GND
To ASN CONT PCB P4
-12V
+12V
TAPE OUT
REC IN
GND
To MONITOR C PCB P1
U1 PC-900
U2 M74LS05P
U3 HD14011BP
U4 NJM4565L
D1 1SS133T-77
SYNC PCB

— GRP MASTER PCB/VR (1) PCB/VR (2) PCB/SYNC PCB —

TASCAM 688 MIDISTUDIO
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TASCAM 688 MIDISTUDIO SCHEMATIC DIAGRAM — ASN CONT PCB —

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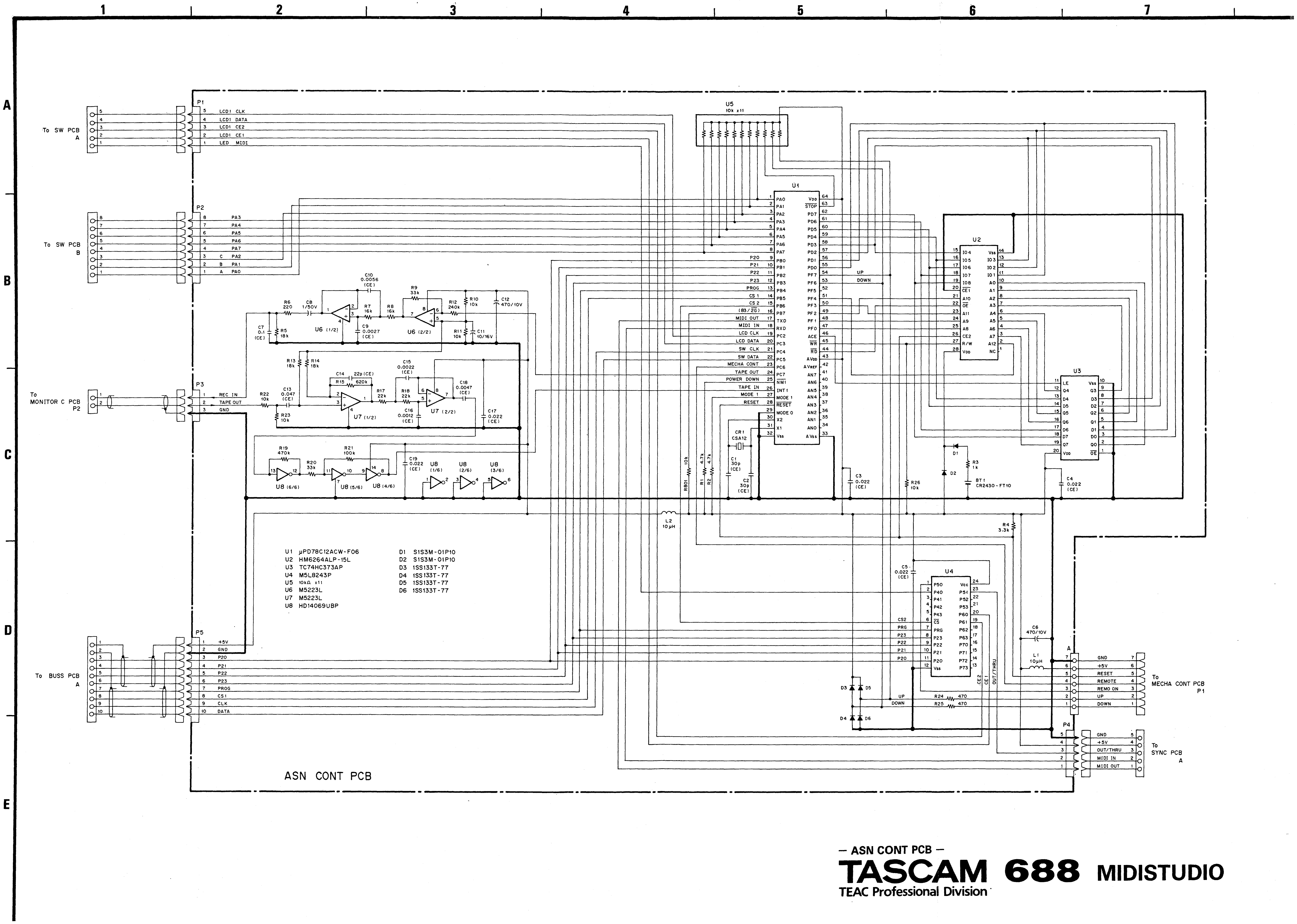
1
2
3
4
5
6
7
A
B
C
D
E
To SW PCB A
P1
LCD1 CLK
LCD1 DATA
LCD1 CE2
LCD1 CE1
LED MIDI
To SW PCB B
P2
PA3
PA4
PA5
PA6
PA7
PA2
PA1
PA0
To MONITOR C PCB P2
P3
REC IN
TAPE OUT
GND
To BUSS PCB A
P5
+5V
GND
P20
P21
P22
P23
PROG
CS1
CLK
DATA
U5 10k x11
U1
U2
U3
U4
U6 (1/2)
U6 (2/2)
U7 (1/2)
U7 (2/2)
U8 (6/6)
U8 (5/6)
U8 (4/6)
U8 (1/6)
U8 (2/6)
U8 (3/6)
CR1 CSA12
BT1 CR2430-FT10
L1 10µH
L2 10µH
P20
P21
P22
P23
PROG
CS 1
CS 2
(8S/2G)
MIDI OUT
MIDI IN
LCD CLK
LCD DATA
SW CLK
SW DATA
MECHA CONT
TAPE OUT
POWER DOWN
TAPE IN
MODE 1
RESET
UP
DOWN
To MECHA CONT PCB P1
GND
+5V
RESET
REMOTE
REMO ON
UP
DOWN
P4
To SYNC PCB A
GND
+5V
OUT/THRU
MIDI IN
MIDI OUT
ASN CONT PCB

U1	µPD78C12ACW-F06
U2	HM6264ALP-15L
U3	TC74HC373AP
U4	M5L8243P
U5	10kΩ x11
U6	M5223L
U7	M5223L
U8	HD14069UBP

D1	S1S3M-01P10
D2	S1S3M-01P10
D3	1SS133T-77
D4	1SS133T-77
D5	1SS133T-77
D6	1SS133T-77

— ASN CONT PCB —

TASCAM 688 MIDISTUDIO

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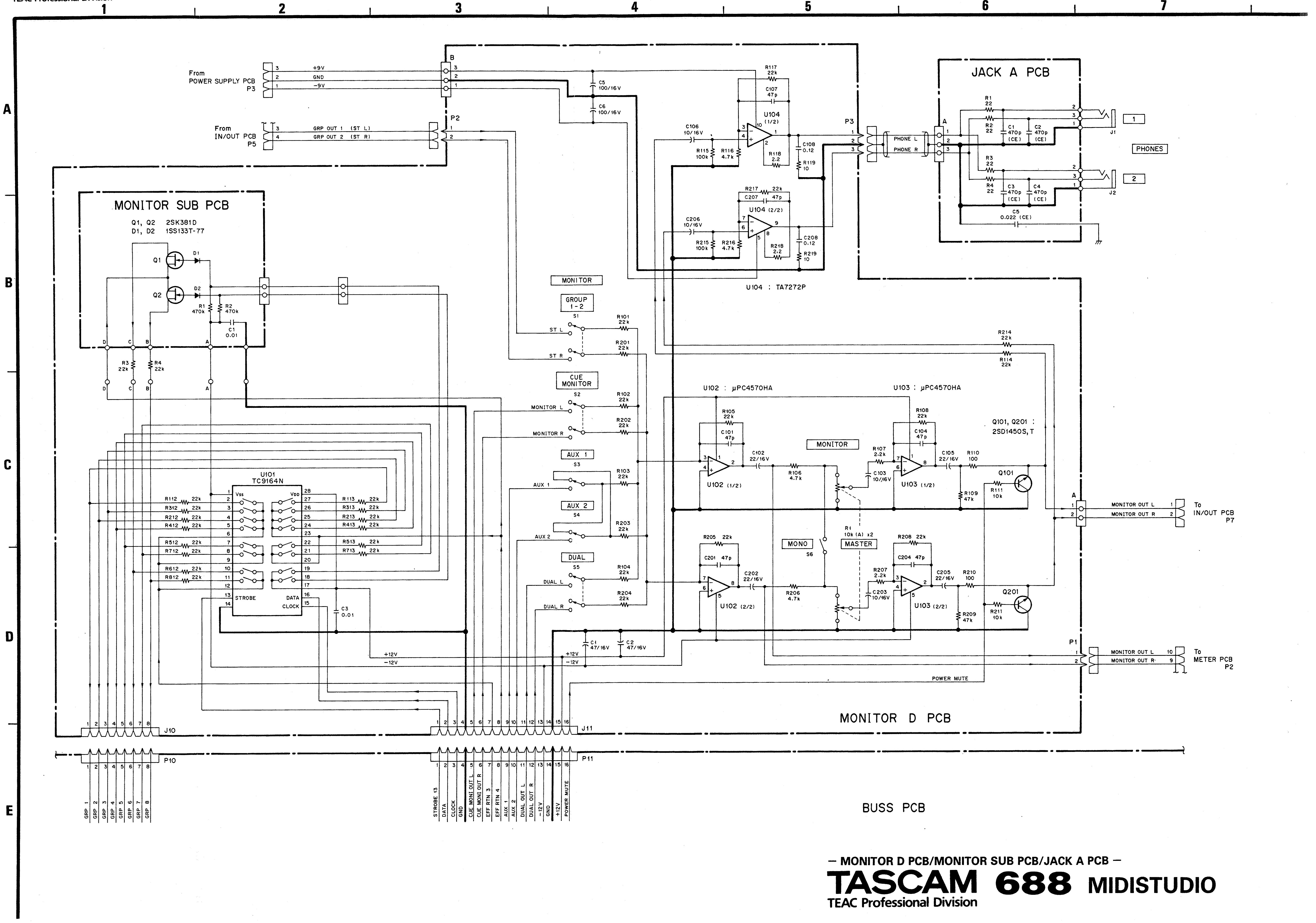
TASCAM 688 MIDISTUDIO SCHEMATIC DIAGRAM — MONITOR D PCB/MONITOR SUB PCB/JACK A PCB —

TEAC Professional Division


1
2
3
4
5
6
7
A
B
C
D
E
From POWER SUPPLY PCB P3
+9V
GND
-9V
From IN/OUT PCB P5
GRP OUT 1 (ST L)
GRP OUT 2 (ST R)
P2
B
C5 100/16V
C6 100/16V
R117 22k
C107 47p
U104 (1/2)
C106 10/16V
R115 100k
R116 4.7k
R118 2.2
C108 0.12
R119 10
R217 22k
C207 47p
U104 (2/2)
C206 10/16V
R215 100k
R216 4.7k
R218 2.2
C208 0.12
R219 10
U104 : TA7272P
P3
PHONE L
PHONE R
JACK A PCB
R1 22
R2 22
R3 22
R4 22
C1 470p (CE)
C2 470p (CE)
C3 470p (CE)
C4 470p (CE)
C5 0.022 (CE)
J1
J2
1
2
PHONES
MONITOR SUB PCB
Q1, Q2 2SK381D
D1, D2 1SS133T-77
Q1
Q2
D1
D2
R1 470k
R2 470k
C1 0.01
R3 22k
R4 22k
MONITOR
GROUP 1-2
S1
ST L
ST R
R101 22k
R201 22k
CUE MONITOR
S2
MONITOR L
MONITOR R
R102 22k
R202 22k
AUX 1
S3
AUX 1
R103 22k
AUX 2
S4
AUX 2
R203 22k
DUAL
S5
DUAL L
DUAL R
R104 22k
R204 22k
R214 22k
R114 22k
U101 TC9164N
Vss
VDD
STROBE
DATA
CLOCK
R112 22k
R312 22k
R212 22k
R412 22k
R512 22k
R712 22k
R612 22k
R812 22k
R113 22k
R313 22k
R213 22k
R413 22k
R513 22k
R713 22k
C3 0.01
C1 47/16V
C2 47/16V
+12V
-12V
U102 : μPC4570HA
U103 : μPC4570HA
R105 22k
C101 47p
C102 22/16V
U102 (1/2)
R106 4.7k
MONITOR
R107 2.2k
C103 10/16V
R108 22k
C104 47p
U103 (1/2)
C105 22/16V
R110 100
R109 47k
R111 10k
Q101
Q101, Q201 : 2SD1450S, T
R205 22k
C201 47p
C202 22/16V
U102 (2/2)
R206 4.7k
MONO
S6
R1 10k (A) x2
MASTER
R207 2.2k
C203 10/16V
R208 22k
C204 47p
U103 (2/2)
C205 22/16V
R210 100
R209 47k
R211 10k
Q201
A
MONITOR OUT L
MONITOR OUT R
To IN/OUT PCB P7
P1
To METER PCB P2
POWER MUTE
MONITOR D PCB
J10
J11
P10
P11
GRP 1
GRP 2
GRP 3
GRP 4
GRP 5
GRP 6
GRP 7
GRP 8
STROBE 13
DATA
CLOCK
GND
CUE MONI OUT L
CUE MONI OUT R
EFF RTN 3
EFF RTN 4
AUX 1
AUX 2
DUAL OUT L
DUAL OUT R
-12V
GND
+12V
POWER MUTE
BUSS PCB

— MONITOR D PCB/MONITOR SUB PCB/JACK A PCB —

TASCAM 688 MIDISTUDIO

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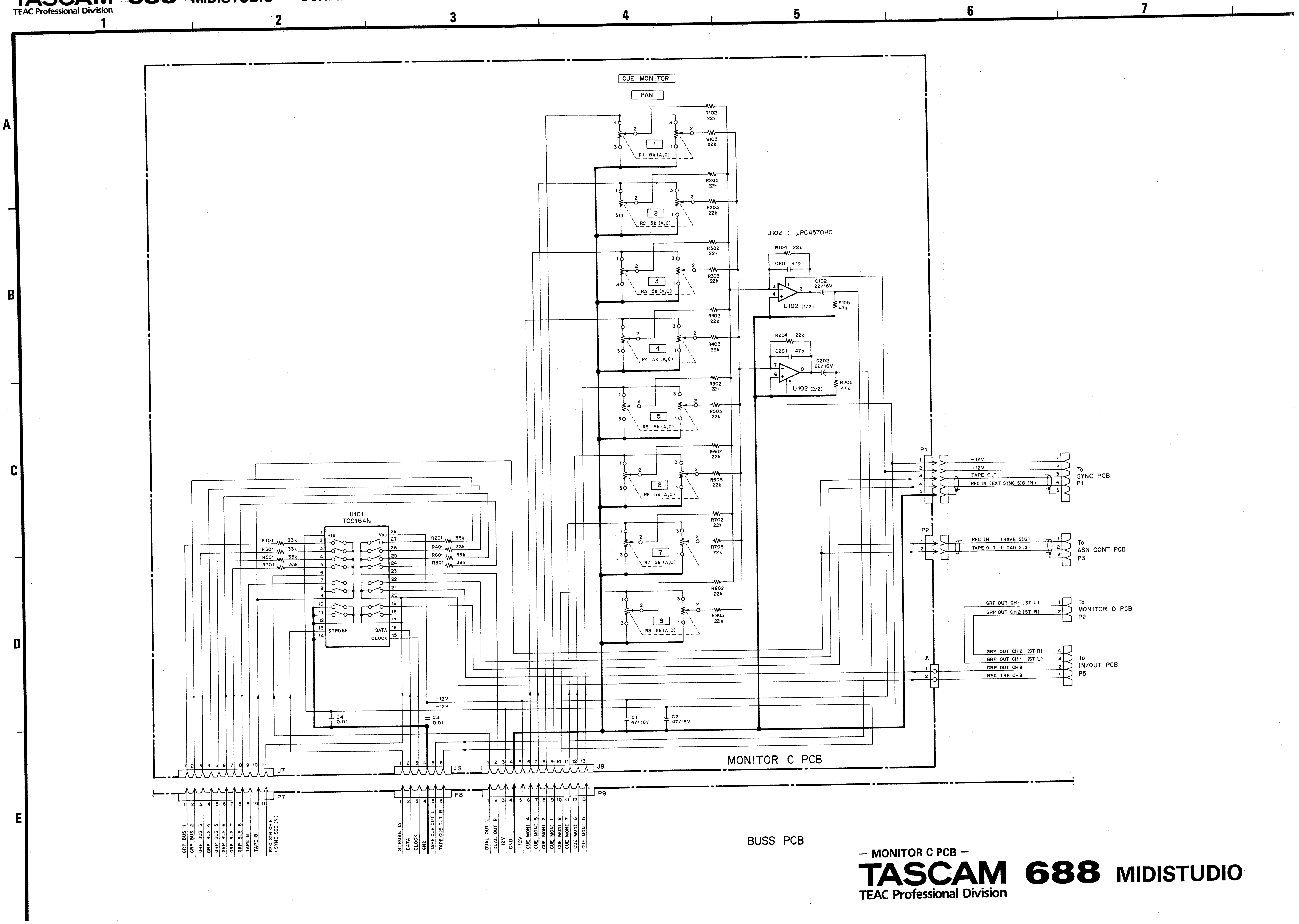
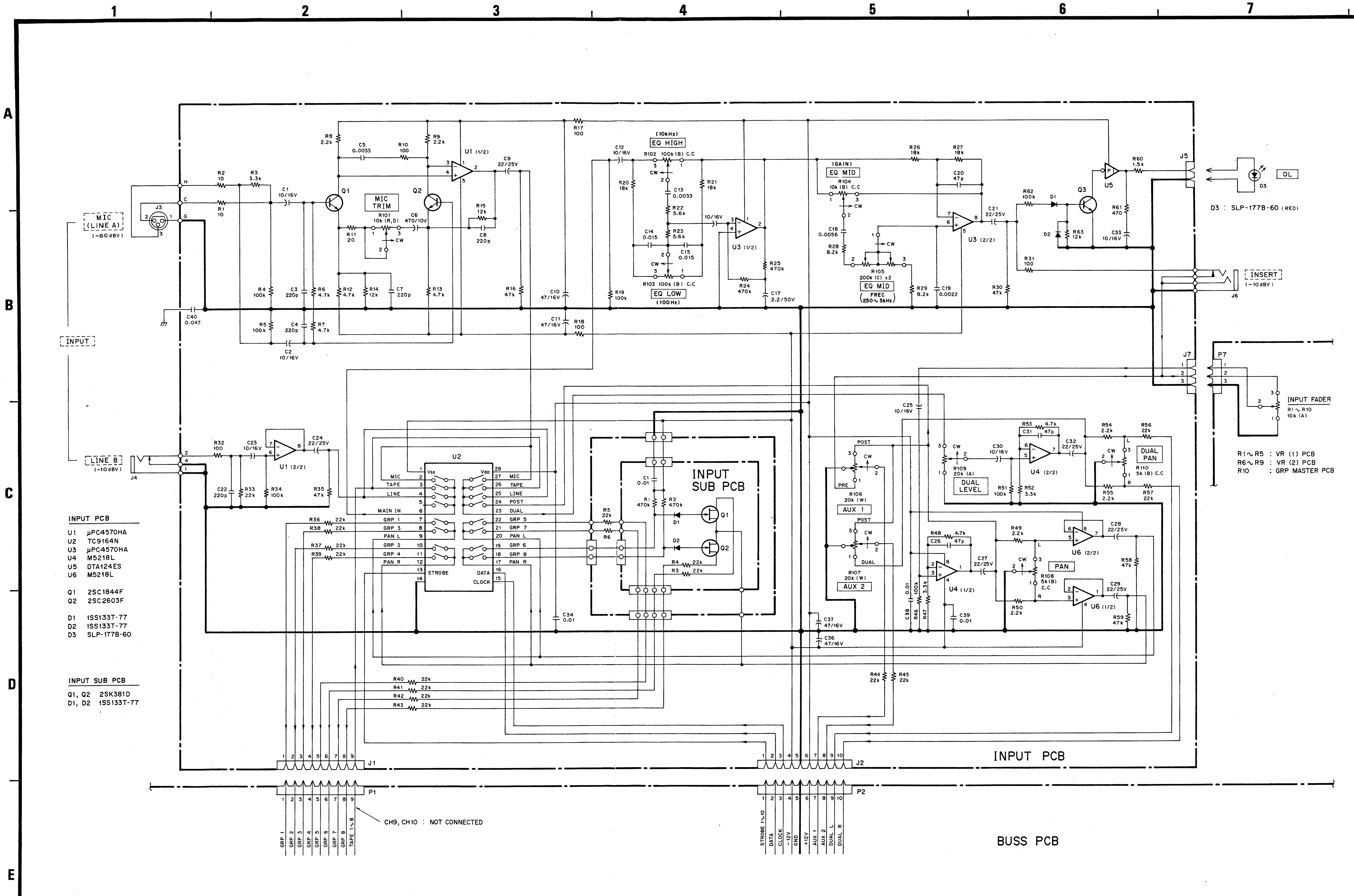
SCHEMATIC DIAGRAM – MONITOR C PCB –


1
2
3
4
5
6
7
A
B
C
D
E
CUE MONITOR
PAN
R1 5k (A,C)
R2 5k (A,C)
R3 5k (A,C)
R4 5k (A,C)
R5 5k (A,C)
R6 5k (A,C)
R7 5k (A,C)
R8 5k (A,C)
R102 22k
R103 22k
R202 22k
R203 22k
R302 22k
R303 22k
R402 22k
R403 22k
R502 22k
R503 22k
R602 22k
R603 22k
R702 22k
R703 22k
R802 22k
R803 22k
U102 : μPC4570HC
R104 22k
C101 47p
C102 22/16V
R105 47k
U102 (1/2)
R204 22k
C201 47p
C202 22/16V
R205 47k
U102 (2/2)
U101
TC9164N
Vss
VDD
STROBE
DATA
CLOCK
R101 33k
R301 33k
R501 33k
R701 33k
R201 33k
R401 33k
R601 33k
R801 33k
+12V
−12V
C4 0.01
C3 0.01
C1 47/16V
C2 47/16V
P1
−12V
+12V
TAPE OUT
REC IN (EXT SYNC SIG IN)
To SYNC PCB P1
P2
REC IN (SAVE SIG)
TAPE OUT (LOAD SIG)
To ASN CONT PCB P3
GRP OUT CH1 (ST L)
GRP OUT CH2 (ST R)
To MONITOR D PCB P2
A
GRP OUT CH2 (ST R)
GRP OUT CH1 (ST L)
GRP OUT CH8
REC TRK CH8
To IN/OUT PCB P5
MONITOR C PCB
J7
J8
J9
P7
P8
P9
GRP BUS 1
GRP BUS 2
GRP BUS 3
GRP BUS 4
GRP BUS 5
GRP BUS 6
GRP BUS 7
GRP BUS 8
TAPE 8
TAPE 8
REC SIG CH 8 (SYNC SIG IN)
STROBE 13
DATA
CLOCK
GND
TAPE CUE OUT L
TAPE CUE OUT R
DUAL OUT L
DUAL OUT R
−12V
GND
+12V
CUE MONI 4
CUE MONI 3
CUE MONI 2
CUE MONI 1
CUE MONI 8
CUE MONI 7
CUE MONI 6
CUE MONI 5
BUSS PCB

TASCAM 688 MIDISTUDIO SCHEMATIC DIAGRAM — INPUT PCB —
TEAC Professional Division


1
2
3
4
5
6
7
A
B
C
D
E
MIC (LINE A) (−60dBV)
INPUT
LINE B (−10dBV)
J3
J4
C40 0.047
R2 10
R1 10
R3 3.3k
C1 10/16V
R4 100k
R5 100k
C3 220p
C4 220p
R6 4.7k
R7 4.7k
C2 10/16V
R8 2.2k
R9 2.2k
C5 0.0033
R10 100
Q1
Q2
MIC TRIM
R101 10k (R,D)
R11 20
C6 470/10V
R12 4.7k
R14 12k
C7 220p
R13 4.7k
U1 (1/2)
C9 22/25V
R15 12k
C8 220p
R16 47k
R17 100
C10 47/16V
C11 47/16V
R18 100
(10kHz)
EQ HIGH
C12 10/16V
R102 100k (B) C.C
R20 18k
R21 18k
C13 0.0033
R22 5.6k
R23 5.6k
C14 0.015
C15 0.015
R103 100k (B) C.C
EQ LOW
(100Hz)
R19 100k
U3 (1/2)
R24 470k
R25 470k
C17 2.2/50V
(GAIN)
EQ MID
R104 10k (B) C.C
C18 0.0056
R28 8.2k
R105 200k (C) x2
EQ MID (FREQ) (250∼5kHz)
R29 8.2k
C19 0.0022
R26 18k
R27 18k
C20 47p
U3 (2/2)
C21 22/25V
R30 47k
R31 100
R62 100k
D1
D2
Q3
R63 12k
C33 10/16V
R61 470
U5
R60 1.5k
J5
D3
OL
D3 : SLP-177B-60 (RED)
INSERT (−10dBV)
J6
J7
P7
INPUT FADER R1∼R10 10k (A)
R1∼R5 : VR (1) PCB
R6∼R9 : VR (2) PCB
R10 : GRP MASTER PCB
R32 100
C23 10/16V
U1 (2/2)
C24 22/25V
C22 220p
R33 22k
R34 100k
R35 47k
U2
MIC
TAPE
LINE
MAIN IN
GRP 1
GRP 3
PAN L
GRP 2
GRP 4
PAN R
STROBE
DATA
CLOCK
POST
DUAL
GRP 5
GRP 7
GRP 6
GRP 8
R36 22k
R38 22k
R37 22k
R39 22k
C34 0.01
INPUT SUB PCB
C1 0.01
R1 470k
R2 470k
R5 22k
R6
D1
D2
Q1
Q2
R4 22k
R3 22k
C25 10/16V
R106 20k (W)
PRE
AUX 1
R107 20k (W)
AUX 2
C37 47/16V
C36 47/16V
C38 0.01
R46 100k
R47 3.3k
R44 22k
R45 22k
R109 20k (A)
C30 10/16V
DUAL LEVEL
R51 100k
R52 3.3k
R53 4.7k
C31 47p
U4 (2/2)
C32 22/25V
R54 2.2k
R56 22k
R110 5k (B) C.C
DUAL PAN
R55 2.2k
R57 22k
R48 4.7k
C26 47p
U4 (1/2)
C27 22/25V
C39 0.01
R49 2.2k
R108 5k (B) C.C
PAN
U6 (2/2)
C28 22/25V
R58 47k
R50 2.2k
U6 (1/2)
C29 22/25V
R59 47k
R40 22k
R41 22k
R42 22k
R43 22k
J1
J2
P1
P2
INPUT PCB
BUSS PCB
CH9, CH10 : NOT CONNECTED
GRP 1
GRP 2
GRP 3
GRP 4
GRP 5
GRP 6
GRP 7
GRP 8
TAPE 1∼8
STROBE 1∼10
DATA
CLOCK
−12V
GND
+12V
AUX 1
AUX 2
DUAL L
DUAL R

INPUT PCB

U1	μPC4570HA
U2	TC9164N
U3	μPC4570HA
U4	M5218L
U5	DTA124ES
U6	M5218L
Q1	2SC1844F
Q2	2SC2603F
D1	1SS133T-77
D2	1SS133T-77
D3	SLP-177B-60

INPUT SUB PCB

Q1, Q2	2SK381D
D1, D2	1SS133T-77

— INPUT PCB —

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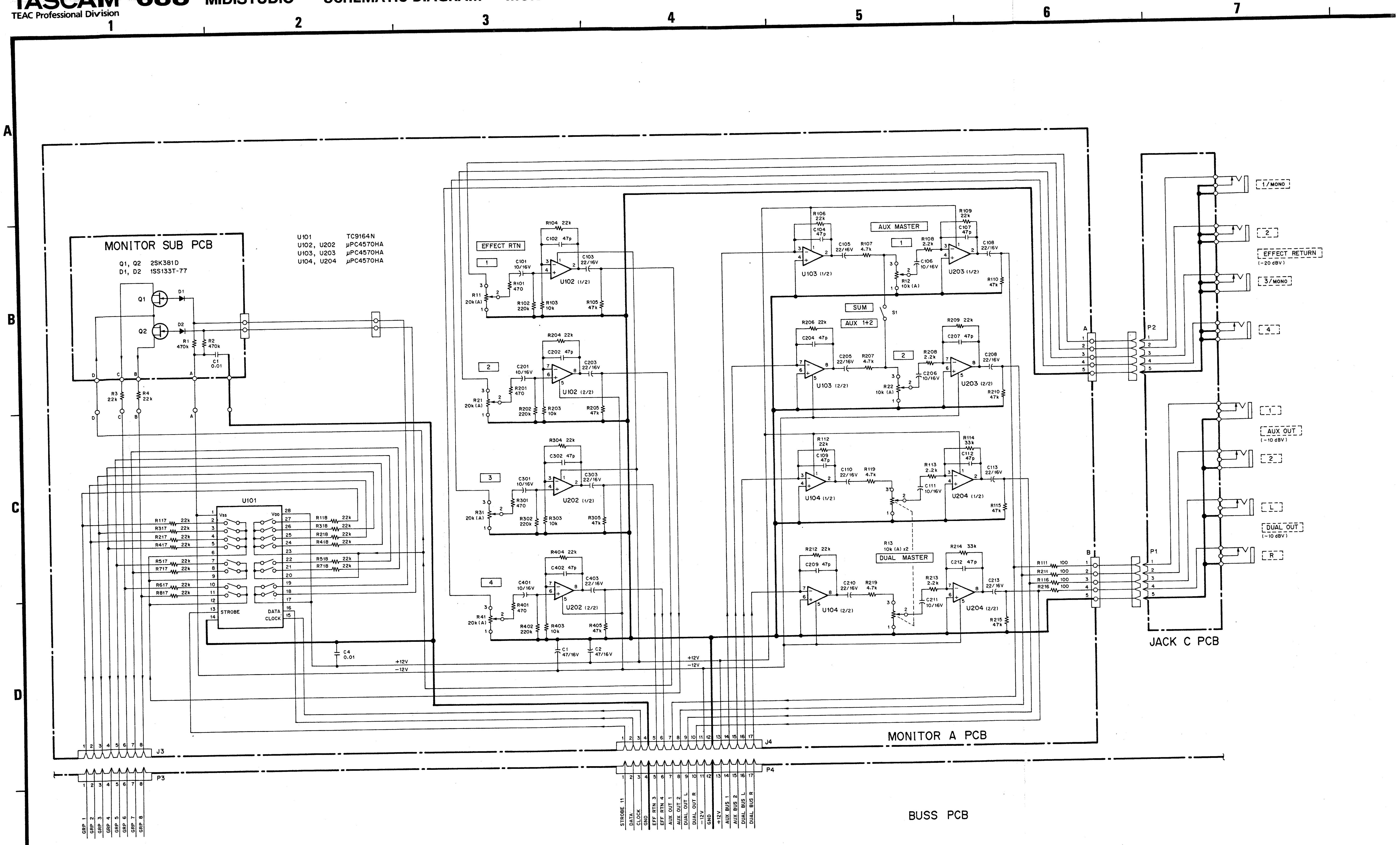
1
2
3
4
5
6
7
A
B
C
D
E
MONITOR SUB PCB
Q1, Q2 2SK381D
D1, D2 1SS133T-77
U101 TC9164N
U102, U202 μPC4570HA
U103, U203 μPC4570HA
U104, U204 μPC4570HA
EFFECT RTN
AUX MASTER
SUM
AUX 1+2
S1
DUAL MASTER
U101
STROBE
DATA
CLOCK
Vss
VDD
+12V
−12V
C4 0.01
C1 47/16V
C2 47/16V
MONITOR A PCB
JACK C PCB
BUSS PCB
J3
J4
P1
P2
P3
P4
1/MONO
2
EFFECT RETURN (−20 dBV)
3/MONO
4
1
AUX OUT (−10 dBV)
2
L
DUAL OUT (−10 dBV)
R
GRP 1
GRP 2
GRP 3
GRP 4
GRP 5
GRP 6
GRP 7
GRP 8
STROBE 11
DATA
CLOCK
GND
EFF RTN 3
EFF RTN 4
AUX OUT 1
AUX OUT 2
DUAL OUT L
DUAL OUT R
−12V
GND
+12V
AUX BUS 1
AUX BUS 2
DUAL BUS L
DUAL BUS R

TASCAM 688 MIDISTUDIO SCHEMATIC DIAGRAM — MONITOR B PCB —

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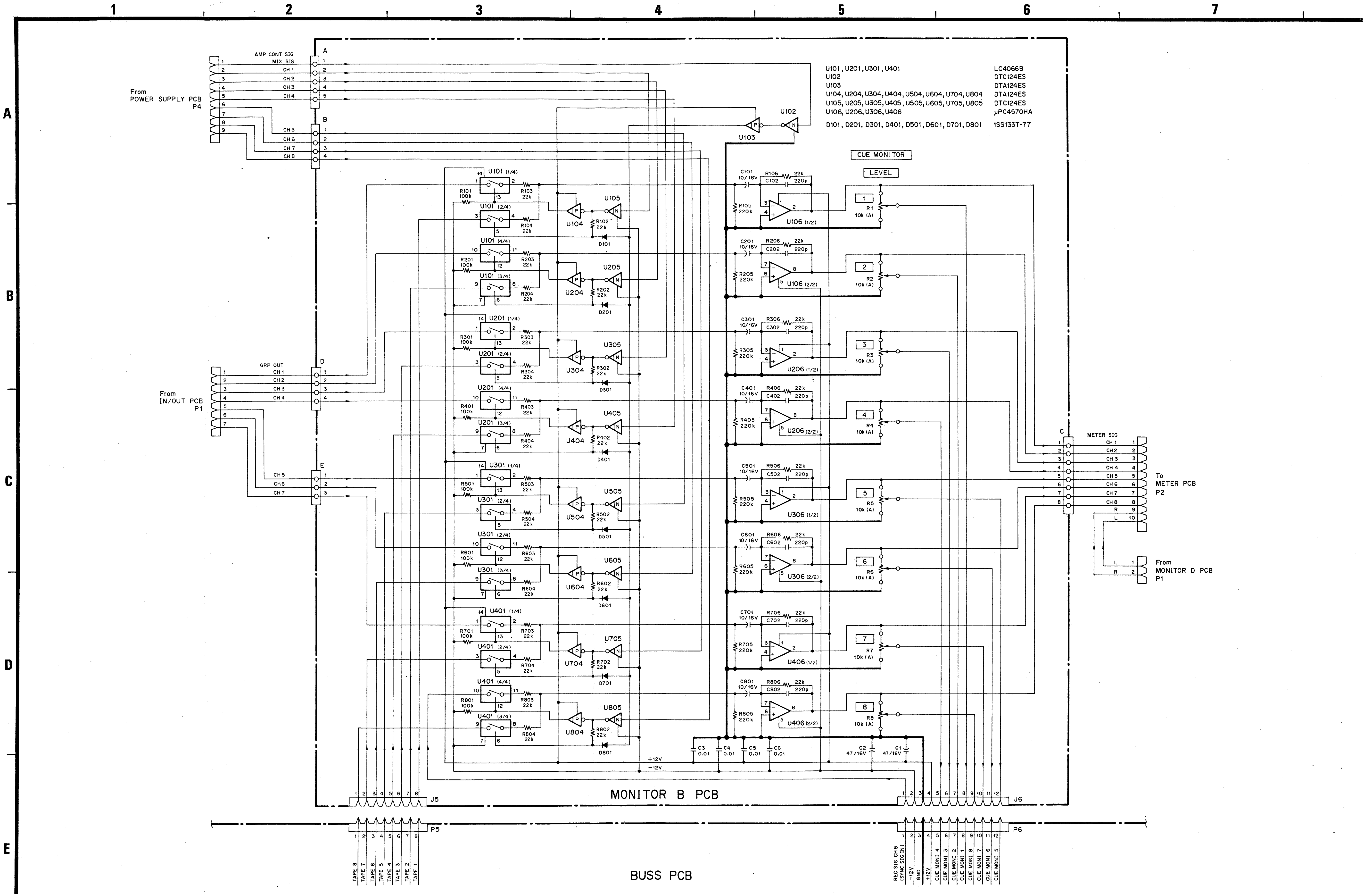

U101, U201, U301, U401	LC4066B
U102	DTC124ES
U103	DTA124ES
U104, U204, U304, U404, U504, U604, U704, U804	DTA124ES
U105, U205, U305, U405, U505, U605, U705, U805	DTC124ES
U106, U206, U306, U406	µPC4570HA
D101, D201, D301, D401, D501, D601, D701, D801	1SS133T-77

1
2
3
4
5
6
7
A
B
C
D
E
From POWER SUPPLY PCB P4
AMP CONT SIG
MIX SIG
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
CH 7
CH 8
From IN/OUT PCB P1
GRP OUT
U102
U103
P
N
CUE MONITOR
LEVEL
U101 (1/4)
U101 (2/4)
U101 (3/4)
U101 (4/4)
R101 100k
R103 22k
R104 22k
U104
U105
R102 22k
D101
C101 10/16V
R106 22k
C102 220p
R105 220k
U106 (1/2)
U106 (2/2)
R1 10k (A)
R2 10k (A)
R3 10k (A)
R4 10k (A)
R5 10k (A)
R6 10k (A)
R7 10k (A)
R8 10k (A)
U206 (1/2)
U206 (2/2)
U306 (1/2)
U306 (2/2)
U406 (1/2)
U406 (2/2)
C3 0.01
C4 0.01
C5 0.01
C6 0.01
C2 47/16V
C1 47/16V
+12V
−12V
METER SIG
R
L
To METER PCB P2
From MONITOR D PCB P1
MONITOR B PCB
J5
J6
P5
P6
BUSS PCB
TAPE 8
TAPE 7
TAPE 6
TAPE 5
TAPE 4
TAPE 3
TAPE 2
TAPE 1
REC SIG CH8 (SYNC SIG IN)
−12V
GND
+12V
CUE MONI 4
CUE MONI 3
CUE MONI 2
CUE MONI 1
CUE MONI 8
CUE MONI 7
CUE MONI 6
CUE MONI 5

— MONITOR B PCB —

TASCAM 688 MIDISTUDIO

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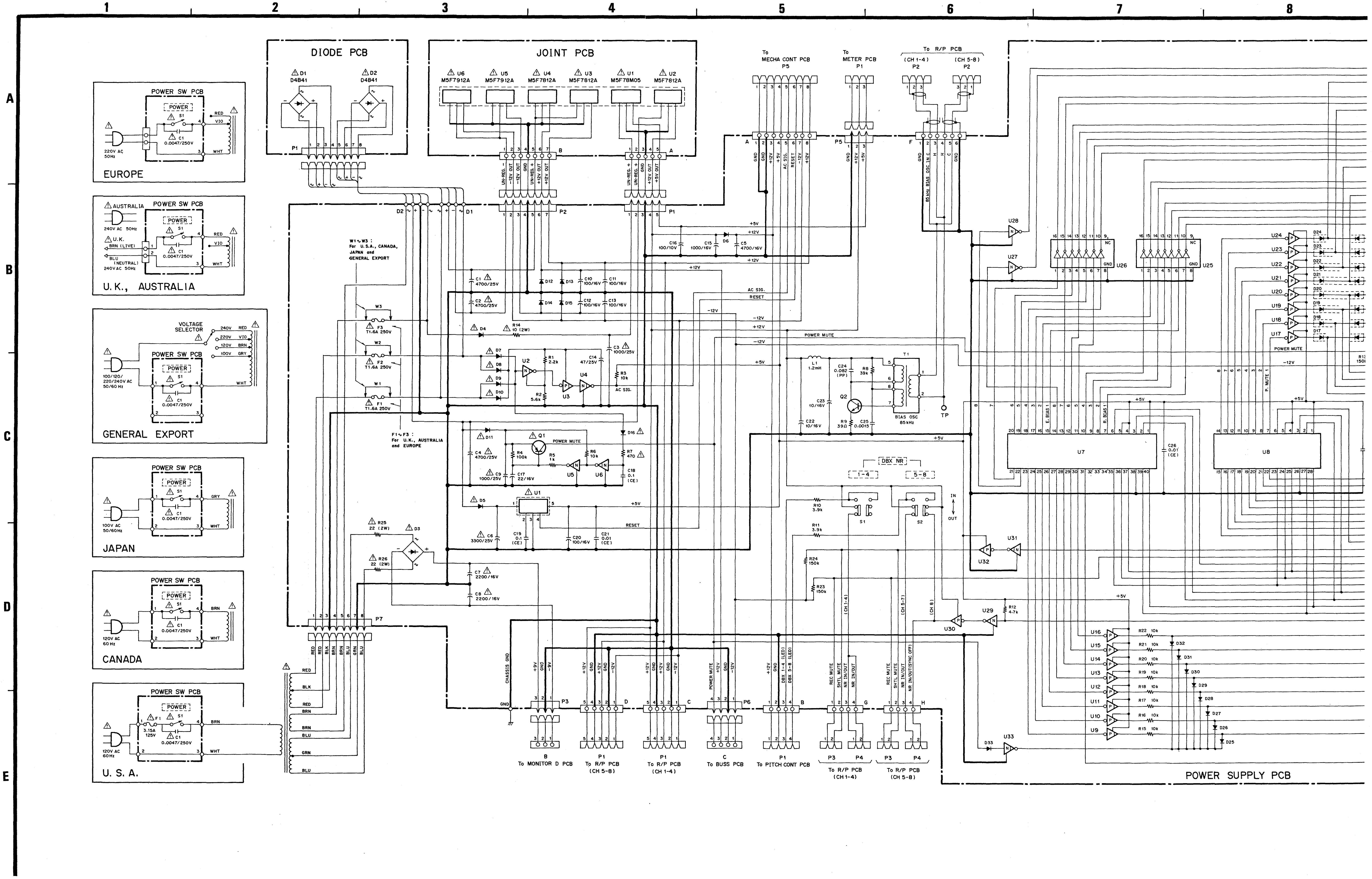
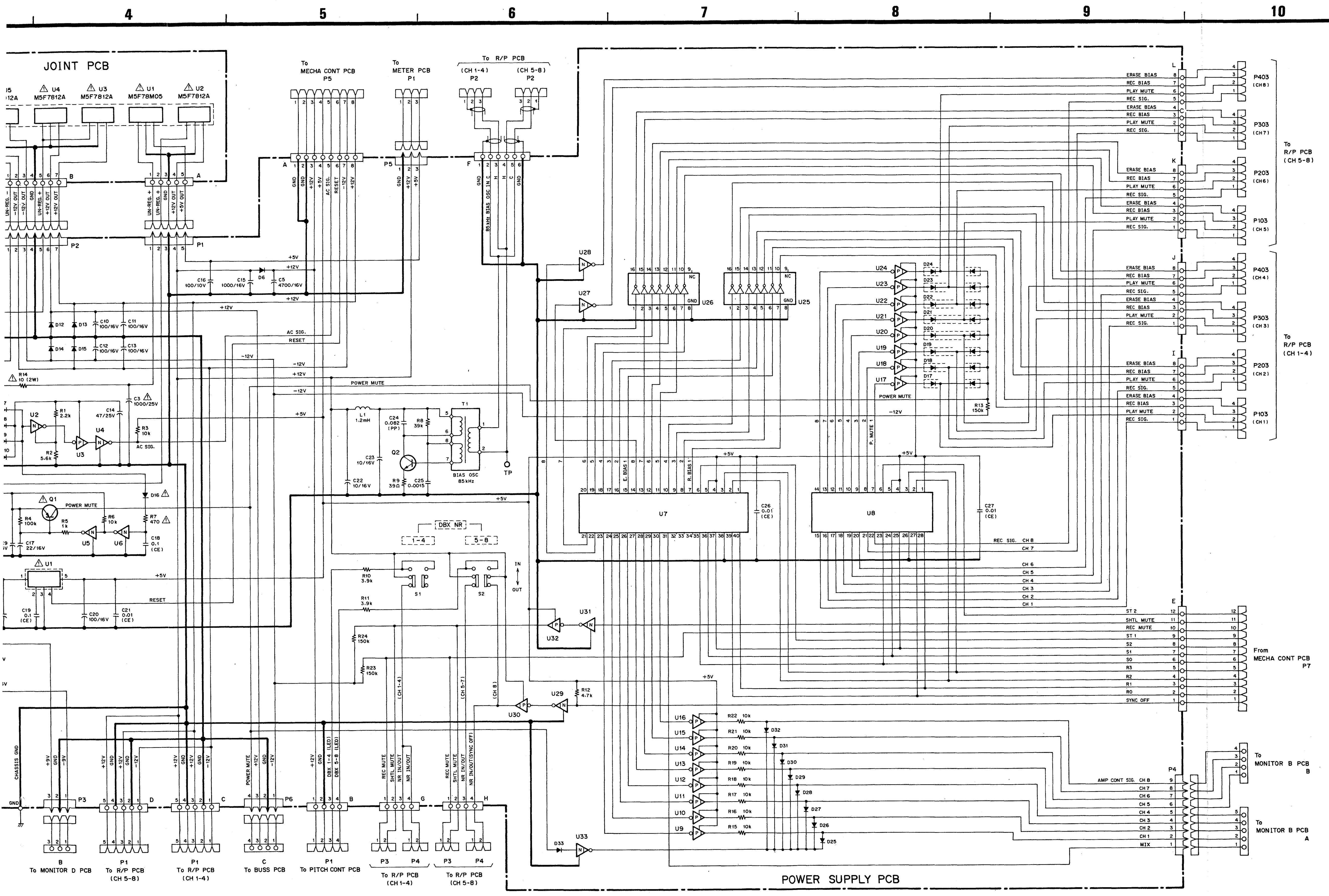
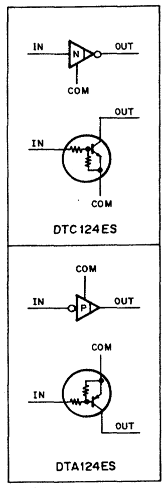
SCHEMATIC DIAGRAM — POWER SUPPLY PCB/DIODE PCB/JOINT PCB/POWER SWITCH PCB —



1
2
3
4
5
6
7
8
A
B
C
D
E
POWER SW PCB
POWER
S1
C1 0.0047/250V
220V AC 50Hz
EUROPE
AUSTRALIA
240V AC 50Hz
U.K.
BRN (LIVE)
BLU (NEUTRAL)
240V AC 50Hz
U.K., AUSTRALIA
VOLTAGE SELECTOR
240V
220V
120V
100V
100/120/220/240V AC 50/60 Hz
GENERAL EXPORT
100V AC 50/60Hz
JAPAN
120V AC 60Hz
CANADA
F1 3.15A 125V
120V AC 60Hz
U.S.A.
RED
VIO
BRN
GRY
WHT
BLK
BLU
GRN
DIODE PCB
D1 D4B41
D2 D4B41
JOINT PCB
U6 M5F7912A
U5 M5F7912A
U4 M5F7812A
U3 M5F7812A
U1 M5F78M05
U2 M5F7812A
UN-REG. −
−12V OUT
+12V OUT
GND
UN-REG. +
+5V OUT
W1~W3 : For U.S.A., CANADA, JAPAN and GENERAL EXPORT
F1~F3 : For U.K., AUSTRALIA and EUROPE
F3 T1.6A 250V
F2 T1.6A 250V
F1 T1.6A 250V
C1 4700/25V
C2 4700/25V
C3 1000/25V
C4 4700/25V
C5 4700/16V
C6 3300/25V
C7 2200/16V
C8 2200/16V
C9 1000/25V
R14 10 (2W)
R25 22 (2W)
R26 22 (2W)
Q1
POWER MUTE
AC SIG.
RESET
+5V
+12V
−12V
To MECHA CONT PCB P5
To METER PCB P1
To R/P PCB (CH 1-4) P2
To R/P PCB (CH 5-8) P2
85kHz BIAS OSC IN
L1 1.2mH
C24 0.082 (PP)
R8 39k
Q2
R9 39Ω
C25 0.0015
T1
BIAS OSC 85kHz
TP
DBX NR
1-4
5-8
S1
S2
IN
OUT
U7
U8
C26 0.01 (CE)
U25
U26
U27
U28
U29
U30
U31
U32
U33
R12 4.7k
R23 150k
R24 150k
R10 3.9k
R11 3.9k
CHASSIS GND
P3 B To MONITOR D PCB
P1 D To R/P PCB (CH 5-8)
P1 C To R/P PCB (CH 1-4)
P6 C To BUSS PCB
P1 B To PITCH CONT PCB
P3 P4 G To R/P PCB (CH 1-4)
P3 P4 H To R/P PCB (CH 5-8)
DBX 1-4 (LED)
DBX 5-8 (LED)
REC MUTE
SHTL MUTE
NR IN/OUT
NR IN/OUT(SYNC OFF)
P. MUTE
E. BIAS
R. BIAS
POWER SUPPLY PCB


4
5
6
7
8
9
10
11
JOINT PCB
U4 M5F7812A
U3 M5F7812A
U1 M5F78M05
U2 M5F7812A
To MECHA CONT PCB P5
To METER PCB P1
To R/P PCB
(CH 1-4) P2
(CH 5-8) P2
UN-REG. -
-12V OUT
UN-REG. +
+12V OUT
+5V OUT
GND
+12V
+5V
AC SIG.
RESET
85kHz BIAS OSC IN
C16 100/10V
C15 1000/16V
D6
C5 4700/16V
D12
D13
C10 100/16V
C11 100/16V
D14
D15
C12 100/16V
C13 100/16V
R14 10 (2W)
C3 1000/25V
R1 2.2k
C14 47/25V
R3 10k
R2 5.6k
U2
U3
U4
Q1
POWER MUTE
R4 100k
R5 1k
R6 10k
R7 470
D16
C17 22/16V
C18 0.1 (CE)
U5
U6
U1
C19 0.1 (CE)
C20 100/16V
C21 0.01 (CE)
-12V
+12V
+5V
POWER MUTE
L1 1.2mH
C24 0.082 (PP)
R8 39k
T1
C23 10/16V
Q2
C22 10/16V
R9 39Ω
C25 0.0015
BIAS OSC 85kHz
TP
U28
U27
U26
U25
NC
GND
U24
U23
U22
U21
U20
U19
U18
U17
D17
D18
D19
D20
D21
D22
D23
D24
R13 150k
E. BIAS
R. BIAS
P. MUTE
U7
U8
C26 0.01 (CE)
C27 0.01 (CE)
DBX NR
1-4
5-8
R10 3.9k
R11 3.9k
S1
S2
IN
OUT
R24 150k
R23 150k
U31
U32
U29
U30
R12 4.7k
U33
D33
U16
U15
U14
U13
U12
U11
U10
U9
R22 10k
R21 10k
R20 10k
R19 10k
R18 10k
R17 10k
R16 10k
R15 10k
D32
D31
D30
D29
D28
D27
D26
D25
ERASE BIAS
REC BIAS
PLAY MUTE
REC SIG.
P403 (CH 8)
P303 (CH 7)
P203 (CH 6)
P103 (CH 5)
To R/P PCB (CH 5-8)
P403 (CH 4)
P303 (CH 3)
P203 (CH 2)
P103 (CH 1)
To R/P PCB (CH 1-4)
REC SIG. CH 8
CH 7
CH 6
CH 5
CH 4
CH 3
CH 2
CH 1
ST 2
SHTL MUTE
REC MUTE
ST 1
S2
S1
S0
R3
R2
R1
R0
SYNC OFF
From MECHA CONT PCB P7
AMP CONT SIG. CH 8
MIX
P4
To MONITOR B PCB B
To MONITOR B PCB A
POWER SUPPLY PCB
CHASSIS GND
GND
P3
P6
B
To MONITOR D PCB
P1
To R/P PCB (CH 5-8)
P1
To R/P PCB (CH 1-4)
C
To BUSS PCB
P1
To PITCH CONT PCB
DBX 1-4 (LED)
DBX 5-8 (LED)
REC MUTE
SHTL MUTE
NR IN/OUT
NR IN/OUT(SYNC OFF)
P3
P4
To R/P PCB (CH 1-4)
To R/P PCB (CH 5-8)

U1	L78MR05
U2	DTC124ES
U3	DTA124ES
U4 ∿U6	DTC124ES
U7	M50780SP
U8	M50781SP
U9 ∿U24	DTA124ES
U25, U26	BA6251
U27∿U29	DTC124ES
U30	DTA124ES
U31	DTC124ES
U32	DTA124ES
U33	DTC124ES
Q1	2SA1015GR
Q2	2SC2603F
D3	W02
D4 ∿D6	1SR35-200A
D7, D8	1SS133T-77
D9, D10	1S2473
D11 ∿D15	1SR35-200A
D16	1SS133T-77
D17 ∿D24	MC921
D25 ∿D32	1SS133T-77


IN
OUT
COM
DTC124ES
DTA124ES

— POWER SUPPLY PCB/DIODE PCB/JOINT PCB/POWER SWITCH PCB —

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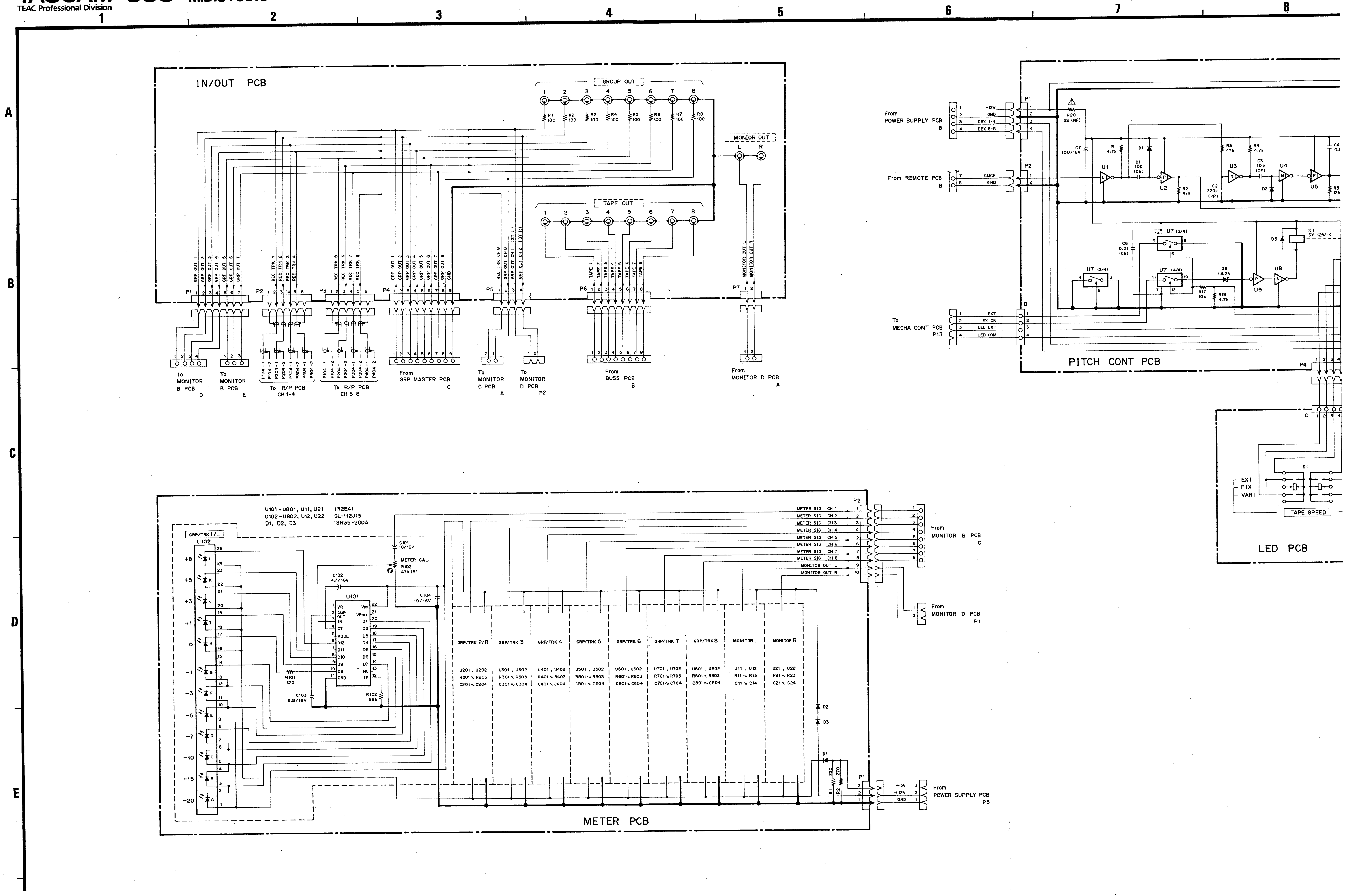
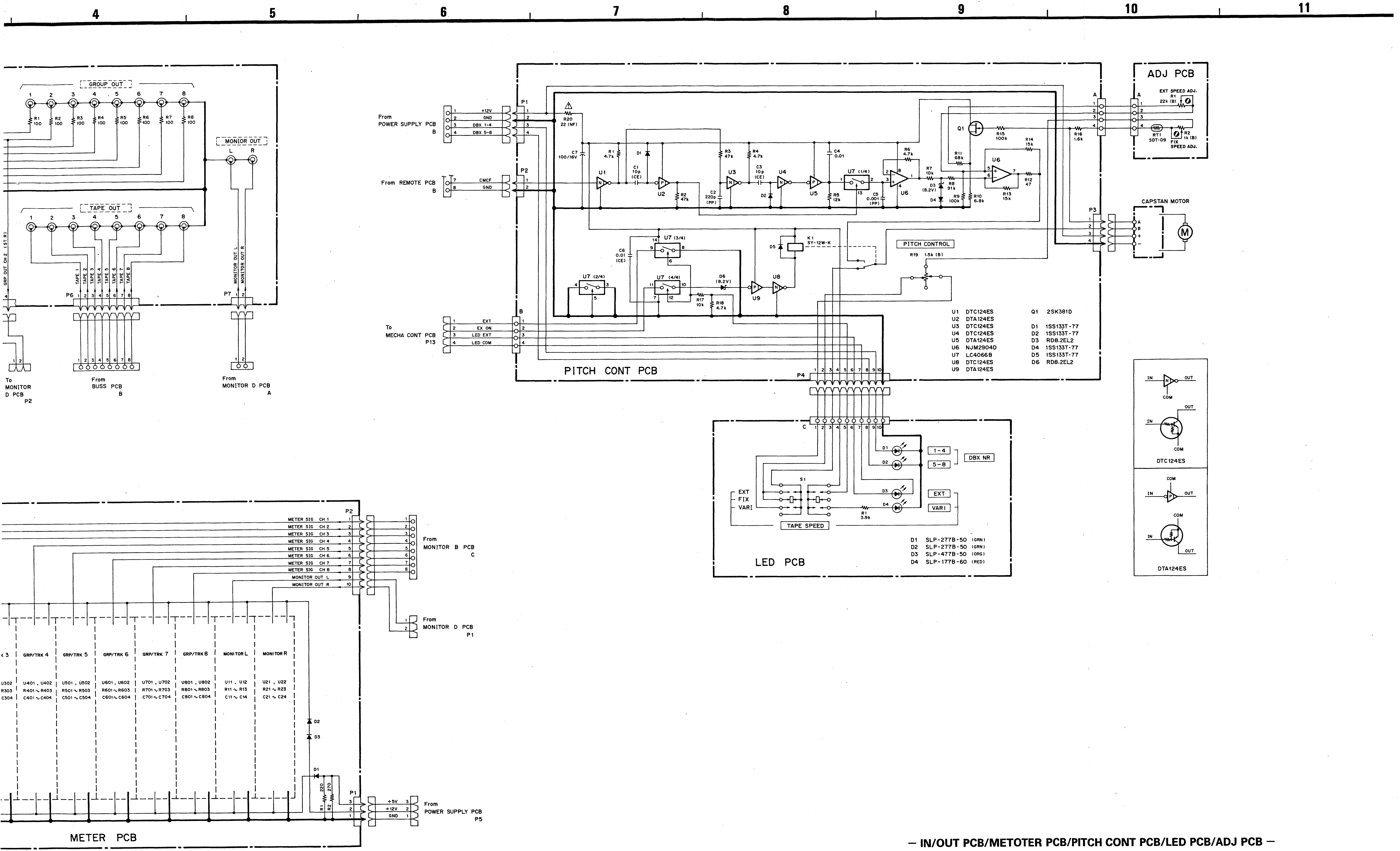
SCHEMATIC DIAGRAM — IN/OUT PCB/METOTER PCB/PITCH CONT PCB/LED PCB/ADJ PCB —



1
2
3
4
5
6
7
8
A
B
C
D
E
IN/OUT PCB
GROUP OUT
R1 100
R2 100
R3 100
R4 100
R5 100
R6 100
R7 100
R8 100
MONIOR OUT
L
R
TAPE OUT
GRP OUT 1
GRP OUT 2
GRP OUT 3
GRP OUT 4
GRP OUT 5
GRP OUT 6
GRP OUT 7
REC TRK 1
REC TRK 2
REC TRK 3
REC TRK 4
REC TRK 5
REC TRK 6
REC TRK 7
REC TRK 8
GRP OUT 8
GND
REC TRK CH 8
GRP OUT CH 8
GRP OUT CH 1 (ST L)
GRP OUT CH 2 (ST R)
TAPE 1
TAPE 2
TAPE 3
TAPE 4
TAPE 5
TAPE 6
TAPE 7
TAPE 8
MONITOR OUT L
MONITOR OUT R
P1
P2
P3
P4
P5
P6
P7
To MONITOR B PCB D
To MONITOR B PCB E
To R/P PCB CH 1-4
To R/P PCB CH 5-8
From GRP MASTER PCB C
To MONITOR C PCB A
To MONITOR D PCB P2
From BUSS PCB B
From MONITOR D PCB A
From POWER SUPPLY PCB B
+12V
GND
DBX 1-4
DBX 5-8
From REMOTE PCB B
CMCF
GND
To MECHA CONT PCB P13
EXT
EX ON
LED EXT
LED COM
R20 22 (NF)
C7 100/16V
R1 4.7k
D1
C1 10p (CE)
U1
U2
R2 47k
C2 220p (PP)
R3 47k
R4 4.7k
C3 10p (CE)
U3
U4
U5
D2
R5 12k
C6 0.01 (CE)
U7 (3/4)
U7 (2/4)
U7 (4/4)
D6 (8.2V)
R17 10k
R18 4.7k
U8
U9
D5
K1 SY-12W-K
PITCH CONT PCB
P4
S1
EXT
FIX
VARI
TAPE SPEED
LED PCB
U101-U801, U11, U21 IR2E41
U102-U802, U12, U22 GL-112J13
D1, D2, D3 1SR35-200A
GRP/TRK 1/L
U102
+8
+5
+3
+1
0
−1
−3
−5
−7
−10
−15
−20
C101 10/16V
METER CAL. R103 47k (B)
C102 4.7/16V
U101
C104 10/16V
R101 120
C103 6.8/16V
R102 56k
VR
AMP OUT
IN
CT
MODE
D12
D11
D10
D9
D8
GND
Vcc
VRoff
D1
D2
D3
D4
D5
D6
D7
NC
IR
GRP/TRK 2/R
GRP/TRK 3
GRP/TRK 4
GRP/TRK 5
GRP/TRK 6
GRP/TRK 7
GRP/TRK 8
MONITOR L
MONITOR R
U201, U202 R201 ~ R203 C201 ~ C204
U301, U302 R301 ~ R303 C301 ~ C304
U401, U402 R401 ~ R403 C401 ~ C404
U501, U502 R501 ~ R503 C501 ~ C504
U601, U602 R601 ~ R603 C601 ~ C604
U701, U702 R701 ~ R703 C701 ~ C704
U801, U802 R801 ~ R803 C801 ~ C804
U11, U12 R11 ~ R13 C11 ~ C14
U21, U22 R21 ~ R23 C21 ~ C24
METER SIG CH 1
METER SIG CH 2
METER SIG CH 3
METER SIG CH 4
METER SIG CH 5
METER SIG CH 6
METER SIG CH 7
METER SIG CH 8
MONITOR OUT L
MONITOR OUT R
From MONITOR B PCB C
From MONITOR D PCB P1
D2
D3
D1
R1 220
R2 270
+5V
+12V
GND
From POWER SUPPLY PCB P5
METER PCB


4
5
6
7
8
9
10
11
GROUP OUT
R1 100
R2 100
R3 100
R4 100
R5 100
R6 100
R7 100
R8 100
MONIOR OUT
L
R
TAPE OUT
TAPE 1
TAPE 2
TAPE 3
TAPE 4
TAPE 5
TAPE 6
TAPE 7
TAPE 8
MONITOR OUT L
MONITOR OUT R
P6
P7
To MONITOR D PCB P2
From BUSS PCB B
From MONITOR D PCB A
From POWER SUPPLY PCB B
+12V
GND
DBX 1-4
DBX 5-8
P1
R20 22 (NF)
C7 100/16V
R1 4.7k
D1
C1 10p (CE)
U1
U2
R2 47k
C2 220p (PP)
R3 47k
R4 4.7k
C3 10p (CE)
U3
U4
D2
R5 12k
U5
C4 0.01
C5 0.001 (PP)
U7 (1/4)
R6 4.7k
U6
R7 10k
D3 (8.2V)
D4
R8 91k
R9 100k
R10 6.8k
R11 68k
Q1
R15 100k
R14 15k
R12 47
R13 15k
R16 1.6k
From REMOTE PCB B
CMCF
GND
P2
U7 (3/4)
C6 0.01 (CE)
K1 SY-12W-K
D5
PITCH CONTROL
R19 1.5k (B)
U7 (2/4)
U7 (4/4)
D6 (8.2V)
R17 10k
R18 4.7k
U9
U8
To MECHA CONT PCB P13
EXT
EX ON
LED EXT
LED COM
PITCH CONT PCB
U1 DTC124ES
U2 DTA124ES
U3 DTC124ES
U4 DTC124ES
U5 DTA124ES
U6 NJM2904D
U7 LC4066B
U8 DTC124ES
U9 DTA124ES
Q1 2SK381D
D1 1SS133T-77
D2 1SS133T-77
D3 RD8.2EL2
D4 1SS133T-77
D5 1SS133T-77
D6 RD8.2EL2
P4
ADJ PCB
EXT SPEED ADJ.
R1 22k (B)
RT1 SDT-09
R2 1k (B)
FIX SPEED ADJ.
P3
CAPSTAN MOTOR
M
LED PCB
S1
EXT
FIX
VARI
TAPE SPEED
R1 3.9k
1-4
5-8
DBX NR
EXT
VARI
D1 SLP-277B-50 (GRN)
D2 SLP-277B-50 (GRN)
D3 SLP-477B-50 (ORG)
D4 SLP-177B-60 (RED)
IN
OUT
COM
DTC124ES
DTA124ES
P2
METER SIG CH 1
METER SIG CH 2
METER SIG CH 3
METER SIG CH 4
METER SIG CH 5
METER SIG CH 6
METER SIG CH 7
METER SIG CH 8
MONITOR OUT L
MONITOR OUT R
From MONITOR B PCB C
From MONITOR D PCB P1
GRP/TRK 4
GRP/TRK 5
GRP/TRK 6
GRP/TRK 7
GRP/TRK 8
MONITOR L
MONITOR R
U401, U402
R401 ~ R403
C401 ~ C404
U501, U502
R501 ~ R503
C501 ~ C504
U601, U602
R601 ~ R603
C601 ~ C604
U701, U702
R701 ~ R703
C701 ~ C704
U801, U802
R801 ~ R803
C801 ~ C804
U11, U12
R11 ~ R13
C11 ~ C14
U21, U22
R21 ~ R23
C21 ~ C24
D1
D2
D3
R1 220
R2 270
P1
+5V
+12V
GND
From POWER SUPPLY PCB P5
METER PCB

– IN/OUT PCB/METOTER PCB/PITCH CONT PCB/LED PCB/ADJ PCB –

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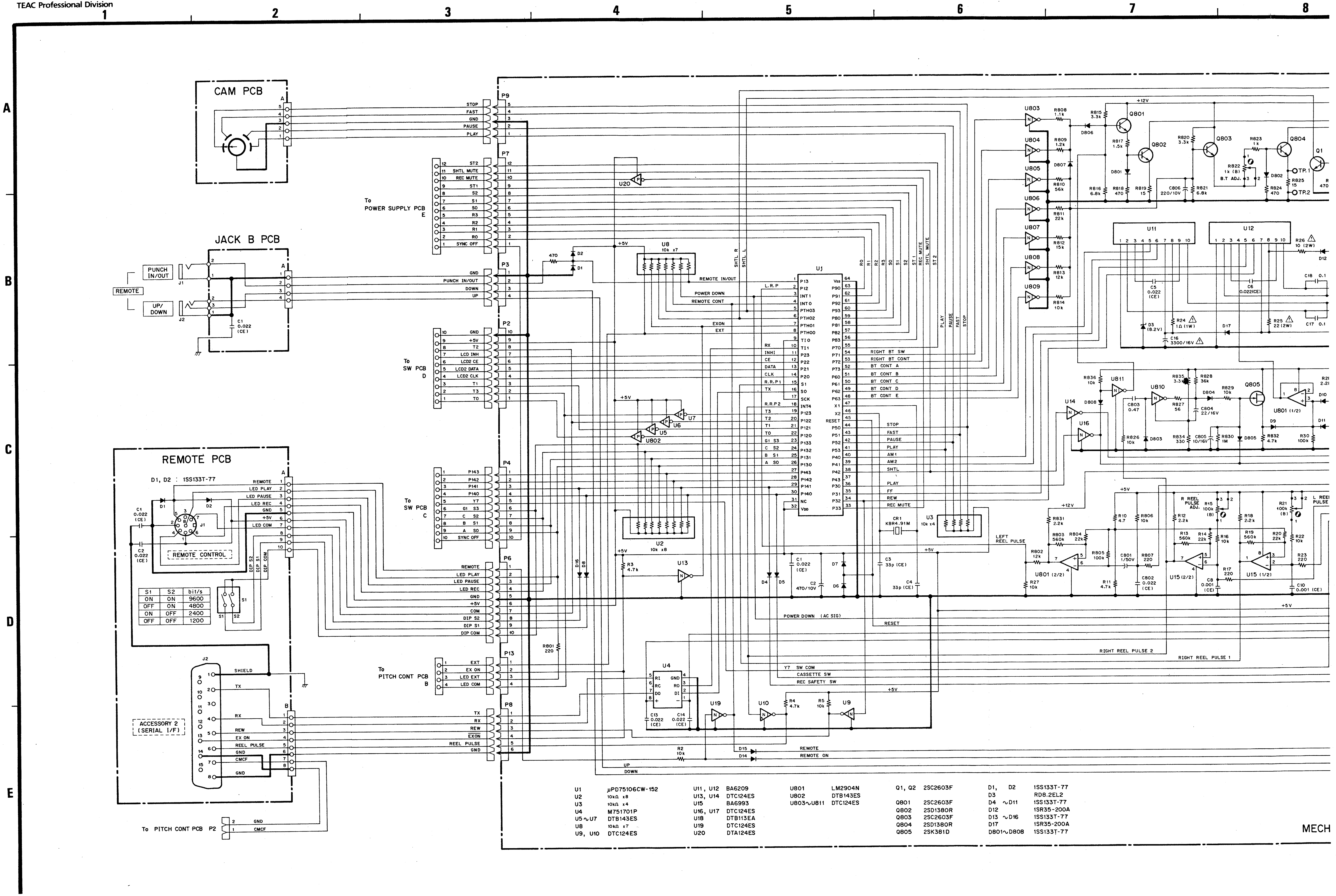
SCHEMATIC DIAGRAM – MECHA CONT PCB/CAM PCB/JACK B PCB/REMOTE PCB/SHTL PCB/JOINT PCB/SENSOR PCB/SW PCB –


CAM PCB
JACK B PCB
PUNCH IN/OUT
REMOTE
UP/DOWN
REMOTE PCB
D1, D2 : 1SS133T-77
REMOTE CONTROL
ACCESSORY 2 (SERIAL I/F)
To POWER SUPPLY PCB E
To SW PCB D
To SW PCB C
To PITCH CONT PCB B
To PITCH CONT PCB P2
P9
P7
P3
P2
P4
P6
P13
P8
U1
U2
U3
U4
U8
U11
U12
LEFT REEL PULSE
RIGHT REEL PULSE 1
RIGHT REEL PULSE 2
POWER DOWN (AC SIG)
RESET
Y7 SW COM
CASSETTE SW
REC SAFETY SW
REMOTE
REMOTE ON
UP
DOWN
MECH

S1	S2	bit/s
ON	ON	9600
OFF	ON	4800
ON	OFF	2400
OFF	OFF	1200

U1	µPD75106CW-152	U11, U12	BA6209	U801	LM2904N	Q1, Q2	2SC2603F	D1, D2	1SS133T-77
U2	10kΩ x8	U13, U14	DTC124ES	U802	DTB143ES			D3	RD8.2EL2
U3	10kΩ x4	U15	BA6993	U803∼U811	DTC124ES	Q801	2SC2603F	D4 ∼D11	1SS133T-77
U4	M751701P	U16, U17	DTC124ES			Q802	2SD1380R	D12	1SR35-200A
U5∼U7	DTB143ES	U18	DTB113EA			Q803	2SC2603F	D13 ∼D16	1SS133T-77
U8	10kΩ x7	U19	DTC124ES			Q804	2SD1380R	D17	1SR35-200A
U9, U10	DTC124ES	U20	DTA124ES			Q805	2SK381D	D801∼D808	1SS133T-77

TASCAM 688 MIDISTUDIO SCHEMATIC DIAGRAM — R/P PCB —

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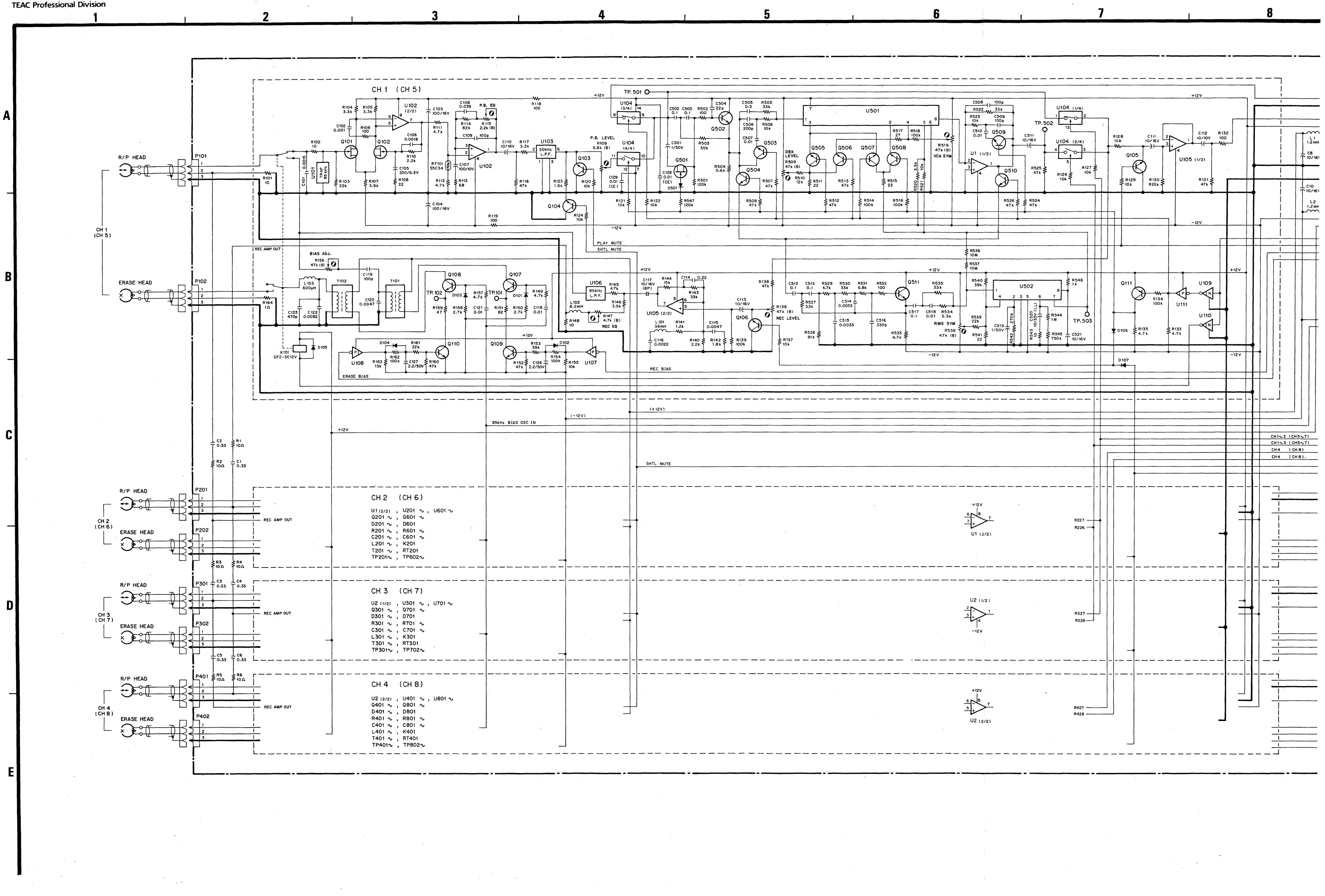
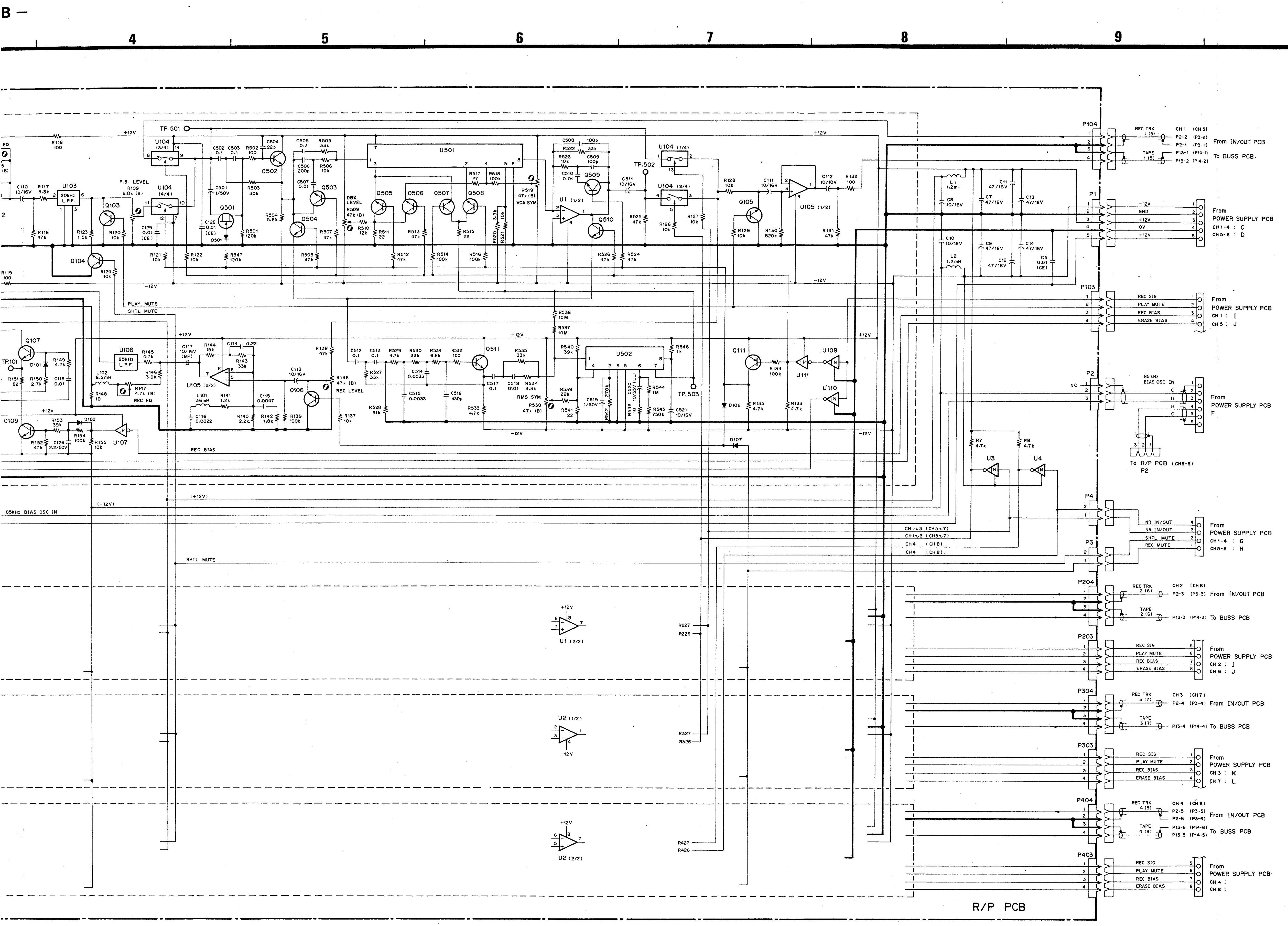
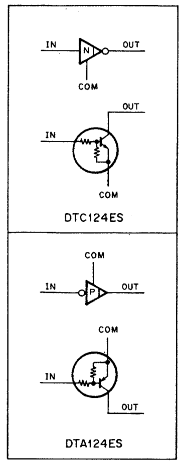

1
2
3
4
5
6
7
8
A
B
C
D
E
CH 1 (CH 5)
R/P HEAD
ERASE HEAD
CH 1 (CH 5)
P101
P102
U101 TRAP 85kHz
Q101
Q102
U102 (2/2)
U102
RT101 S5C34
P.B. EQ
U103 20kHz L.P.F.
Q103
Q104
P.B. LEVEL R109 6.8k (B)
U104 (3/4)
U104 (4/4)
TP.501
Q501
D501
Q502
Q503
Q504
Q505
Q506
Q507
Q508
U501
DBX LEVEL R509 47k (B)
R519 47k (B) VCA SYM
U1 (1/2)
Q509
Q510
TP.502
U104 (1/4)
U104 (2/4)
Q105
U105 (1/2)
+12V
-12V
PLAY MUTE
SHTL MUTE
REC AMP OUT
BIAS ADJ. R156 47k (B)
L103 600μH
T102
T101
Q108
Q107
TP.102
TP.101
D103
D101
U106 85kHz L.P.F.
L102 8.2mH
R147 4.7k (B) REC EQ
U105 (2/2)
L101 36mH
Q106
R136 47k (B) REC LEVEL
Q511
U502
RMS SYM R538 47k (B)
TP.503
Q111
U111
U109
U110
D106
D107
K101 DF2-DC12V
D105
U108
D104
Q110
Q109
D102
U107
ERASE BIAS
REC BIAS
85kHz BIAS OSC IN
(+12V)
(-12V)
SHTL MUTE
CH1~3 (CH5~7)
CH1~3 (CH5~7)
CH4 (CH8)
CH4 (CH8)
P201
P202
CH 2 (CH 6)
CH 2 (CH 6)
U1 (2/2) , U201 ~ , U601 ~
Q201 ~ , Q601 ~
D201 ~ , D601
R201 ~ , R601 ~
C201 ~ , C601 ~
L201 ~ , K201
T201 ~ , RT201
TP201~ , TP602~
U1 (2/2)
R227
R226
P301
P302
CH 3 (CH 7)
CH 3 (CH 7)
U2 (1/2) , U301 ~ , U701 ~
Q301 ~ , Q701 ~
D301 ~ , D701
R301 ~ , R701 ~
C301 ~ , C701 ~
L301 ~ , K301
T301 ~ , RT301
TP301~ , TP702~
U2 (1/2)
R327
R326
P401
P402
CH 4 (CH 8)
CH 4 (CH 8)
U2 (2/2) , U401 ~ , U801 ~
Q401 ~ , Q801 ~
D401 ~ , D801
R401 ~ , R801 ~
C401 ~ , C801 ~
L401 ~ , K401
T401 ~ , RT401
TP401~ , TP802~
U2 (2/2)
R427
R426
R1 10Ω
R2 10Ω
C1 0.33
C2 0.33
R3 10Ω
R4 10Ω
C3 0.33
C4 0.33
R5 10Ω
R6 10Ω
C5 0.33
C6 0.33
L1 1.2mH
L2 1.2mH
C8 10/16V
C10 10/16V


B —
4
5
6
7
8
9
10
11
TP.501
U104 (3/4)
U104 (4/4)
U103 20kHz L.P.F.
P.B. LEVEL R109 6.8k (B)
Q103
Q104
Q501
Q502
Q503
Q504
C504 22p
U501
DBX LEVEL R509 47k (B)
Q505
Q506
Q507
Q508
R519 47k (B) VCA SYM
U1 (1/2)
Q509
Q510
TP.502
U104 (1/4)
U104 (2/4)
Q105
U105 (1/2)
PLAY MUTE
SHTL MUTE
Q107
D101
TP.101
U106 85kHz L.P.F.
REC EQ
U105 (2/2)
Q106
R136 47k (B) REC LEVEL
Q109
U107
Q511
U502
RMS SYM R538 47k (B)
TP.503
Q111
U111
U109
U110
D106
D107
REC BIAS
85kHz BIAS OSC IN
SHTL MUTE
+12V
-12V
L1 1.2mH
L2 1.2mH
R7 4.7k
R8 4.7k
U3
U4
U1 (2/2)
U2 (1/2)
U2 (2/2)
R227
R226
R327
R326
R427
R426
R/P PCB
P104
REC TRK 1 (5)
CH 1 (CH 5)
P2-2 (P3-2)
P2-1 (P3-1)
TAPE 1 (5)
P13-1 (P14-1)
P13-2 (P14-2)
From IN/OUT PCB
To BUSS PCB
P1
-12V
GND
+12V
0V
+12V
From POWER SUPPLY PCB
CH 1-4 : C
CH 5-8 : D
P103
REC SIG
PLAY MUTE
REC BIAS
ERASE BIAS
From POWER SUPPLY PCB
CH 1 : I
CH 5 : J
P2
NC
85 kHz BIAS OSC IN
From POWER SUPPLY PCB
F
To R/P PCB (CH5-8)
P2
P4
NR IN/OUT
NR IN/OUT
SHTL MUTE
REC MUTE
From POWER SUPPLY PCB
CH 1-4 : G
CH 5-8 : H
P3
CH1~3 (CH5~7)
CH1~3 (CH5~7)
CH4 (CH8)
CH4 (CH8)
P204
REC TRK 2 (6)
CH 2 (CH 6)
P2-3 (P3-3)
TAPE 2 (6)
P13-3 (P14-3)
From IN/OUT PCB
To BUSS PCB
P203
From POWER SUPPLY PCB
CH 2 : I
CH 6 : J
P304
REC TRK 3 (7)
CH 3 (CH 7)
P2-4 (P3-4)
TAPE 3 (7)
P13-4 (P14-4)
From IN/OUT PCB
To BUSS PCB
P303
From POWER SUPPLY PCB
CH 3 : K
CH 7 : L
P404
REC TRK 4 (8)
CH 4 (CH 8)
P2-5 (P3-5)
P2-6 (P3-6)
TAPE 4 (8)
P13-6 (P14-6)
P13-5 (P14-5)
From IN/OUT PCB
To BUSS PCB
P403
From POWER SUPPLY PCB
CH 4 :
CH 8 :

U1,	U2	μPC4570C
U3,	U4	DTC124ES
U101	- U401	TRAP COIL 85kHz
U102	- U402	μPC4570C
U103	- U403	L.P.F. 20kHz
U104	- U404	LC4066B
U105	- U405	μPC4570C
U106	- U406	L.P.F. 85kHz
U107	- U407	DTA124ES
U108	- U408	DTA124ES
U109	- U409	DTC124ES
U110	- U410	DTC124ES
U111	- U411	DTA124ES
U501	- U801	μPC1252HA2
U502	- U802	μPC1253H2
Q101	- Q401	2SK170BL
Q102	- Q402	2SK170BL
Q103	- Q403	2SD1450S,T
Q104	- Q404	2SD1450S,T
Q105	- Q405	2SD1450S,T
Q106	- Q406	2SD1450S,T
Q107	- Q407	2SC2002L
Q108	- Q408	2SC2002L
Q109	- Q409	2SC2878B
Q110	- Q410	2SC2878B
Q111	- Q411	2SA1015GR
Q501	- Q801	2SK381D
Q502	- Q802	2SC1815GR
Q503	- Q803	2SC2878B
Q504	- Q804	2SC2878B
Q505	- Q805	2SC2878B
Q506	- Q806	2SC2878B
Q507	- Q807	2SC2878B
Q508	- Q808	2SC2878B
Q509	- Q809	2SC2878B
Q510	- Q810	2SC2878B
Q511	- Q811	2SC1815GR
D101	- D401	1SS133T-77
D102	- D402	1SS133T-77
D103	- D403	1SS133T-77
D104	- D404	1SS133T-77
D105	- D405	1SS133T-77
D106	- D406	1S2473
D107	- D407	1S2473
D501	- D801	1SS133T-77


IN
OUT
COM
IN
OUT
COM
DTC124ES
COM
IN
OUT
COM
IN
OUT
DTA124ES

— R/P PCB —

TASCAM 688 MIDISTUDIO

TEAC Professional Division